JUNE, 1911. Vol. LV. No. 400

# JOURNAL

OF THE

# Royal United Service Institution.

Registered for Transmission to Canada by Canadian Magazine Post

**PUBLISHED UNDER THE AUTHORITY OF THE COUNCIL.**

All communications (except those for perusal by the Editor only) to be addressed to the Secretary, Royal United Service Institution.

LONDON:

**The Royal United Service Institution,**

WHITEHALL, S.W.

Telegraphic Address: "RUSSATUS, LONDON."

Printed by J. J. KELIHER & CO., LIMITED, 33, King William Street, E.C.,
And Craven House, Kingsway, W.C.

Sole Advertisement Contractor: Mr. C. GILBERT-WOOD, Norfolk House, Victoria Embankment, London, W.C.
Telegraphic Address: "GILBERWOOD, LONDON."

*All rights reserved.*

**Price Two Shillings.**

*Military Flying School, Salisbury Plain.*

**THE BRITISH AND COLONIAL AEROPLANE COMPANY, LTD.**

HEAD OFFICE—Clare Street House, BRISTOL.
TELEGRAMS:—"AVIATION, BRISTOL."

*ARMY AIR BATTALION.*

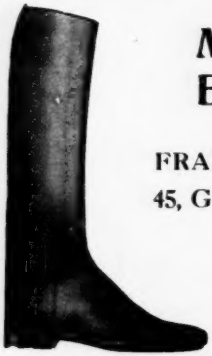
The Finest Flying School in the World is the Company's Military School on Salisbury Plain

**"BRISTOL" MILITARY BIPLANES**

**AS ADOPTED BY H.M. WAR OFFICE.**

Special Terms for Tuition are offered to Naval and Military Officers.

# Craig & Davies



## Military and Civil BOOTMAKERS,

FRANCIS STREET, WOOLWICH.
45, GLASSHOUSE ST., REGENT ST., W.
40, High Street, Aldershot;
and York Town, Camberley.

**ESTABLISHED 1824.**

**SPECIALITY:**

**BUTCHER FIELD BOOTS.**

*Bootmakers by Appointment to Royal Military Academy.*

Connoisseurs of **COFFEE**
**DRINK THE**

# RED WHITE & BLUE.

**DELICIOUS FOR BREAKFAST & AFTER DINNER.**

**In making, use LESS QUANTITY, it being much stronger than ordinary COFFEE**

# LIPTONS

*The Largest Tea and Provision Dealers in the World.*

**MANAGEMENT OF CANTEENS A SPECIALITY.**

TERMS, PRICES, REBATES, &c., ON APPLICATION.

**ALDERSHOT—Elms Road.**
**PORTSEA—35, Queen Street.**
**DEVONPORT—Holman's Buildings.**
**DUBLIN—23, Merchant's Quay.**
**GIBRALTAR—Grand Hotel Buildings.**
**MALTA—39, Strada Reale, Valletta.**
**ALEXANDRIA—Rue Adib.**
**CAIRO—9, Rue Osselli.**
**CALCUTTA—32/1, Dalhousie Square.**
**COLOMBO—Prince Street.**
**BOMBAY—Apollo Street.**
**KARACHI—Nicoll Road.**

**Head Offices—CITY ROAD, LONDON.**


## CONTENTS FOR JUNE, 1911.


| | | |
|---|---|---|
| 1. | PHOTOGRAPHS OF FEZ ... ... ... ... ... .. .. | *Frontispiece.* |
| 2. | SECRETARY'S NOTES ... .. ... ... ... ... ... .. | 685 |
| 3. | PRINCIPAL ADDITIONS TO LIBRARY .. ... ... .. ... | 687 |
| 4. | THE CRIMEA REVISITED. By Major-General H. T. Arbuthnot, C.B. (with 2 photos) ... ... ... ... ... ... ... ... | 689 |
| 5. | THE TACTICAL EMPLOYMENT OF TORPEDO BOATS. By L. Vannutelli, Capitano di corvetta. Translated from the *Rivista Marittima* by Commander R. H. Keate, R.N. ... ... ... ... ... ... | 709 |
| 6. | EXPLOSIVES IN AERIAL WARFARE, WITH SOME REMARKS ON METHODS OF DEFENCE. A Lecture by W. F. Reid, Esq., F.I.C., F.C.S.... ... ... ... ... ... ... ... ... ... | 735 |
| 7. | BALLAD POETRY OF THE SEA. By Lieutenant J. Tenison, R.N. ... | 750 |
| 8. | THE ORGANIZATION OF THE BRITISH BOARD OF ADMIRALTY. Translated from the *Marine Rundschau* by Colonel H. Wylly, C.B. | 757 |
| 9. | THE UNION FLAG. By Rear-Admiral Sir R. Massie Blomfield, K.C.M.G. ... ... ... ... ... ... ... .. ... | 770 |
| 10. | THE MEXICAN ARMY. Translated from the *Revue Militaire des Armées Etrangères* ... ... ... ... ... ... ... ... ... | 775 |
| 11. | MILITARY EDUCATION. The Report on the Army Promotions Examinations for December, 1910 ... .. ... ... ... | 782 |
| 12. | NAVAL NOTES. *British Empire.—Home.* Principal Appointments, Naval Battle Practice, 1910. *Argentine Republic.*—New Turbine Destroyer. *Austria-Hungary.*—Constitution of Squadrons. Naval Estimates. *China.*—Reorganization of Navy. *France.*—Principal Appointments, Steam Trials. New Ships. Submarines ... ... | 785 |
| 13. | MILITARY NOTES. *British Empire.—Home.* The King. Veteran Reserves. Training Arrangements for Regular Troops, Territorial Force and Cadet Units. Aeronautics. *Canada.*—Re-organization of Commands. *India.*—Expedition against Gun Runners. *Austria-Hungary.*—Manœuvres in 1911: New Law of Military Service: Landwehr. *Belgium*—Manœuvres in 1911. *France.*—Death of War Minister; Manœuvres in 1911. *Morocco.*—Operations in May (Sketch Map). *Germany, Japan.*—Manœuvres in 1911. *Mexico.*—Conclusion of Hostilities. *Russia.*—Manœuvres in 1911. *Turkey.*—The Albanian Rising (Sketch Map). *Greece*—Recruit Contingent. *Rumania.*—The 10th Division ... ... ... ... ... ... | 797 |
| 14. | NAVAL AND MILITARY CALENDAR FOR MAY, 1911 .. ... ... | 813 |
| 15. | NOTICES OF BOOKS ... ... ... ... ... ... ... ... | 813 |
| 16. | CONTENTS OF FOREIGN PERIODICALS FOR MAY, 1911 ... ... | 818 |
| 17. | RECENT PUBLICATIONS OF MILITARY INTEREST ... ... ... | 823 |



THE

*H.W. Velvet Grip*

GENTLEMEN'S PATENT

**BOSTON GARTER.**

The only "GRIP" that "GRIPS" securely without injury to the Hose.

**GEORGE HODGKINSON & Co.**

*Hosiers*, 1, Station Buildings, Broadway, WESTMINSTER, S.W.

**COTTON,** 1/- pair.

**SILK,** 2/- pair.

By Post, 1d. extra.

## PATENTS.

104, VICTORIA STREET,
WESTMINSTER, S.W.

IN JANUARY OF THIS YEAR WE FOUND IT NECESSARY TO ESTABLISH A PATENT DEPARTMENT UNDER THE SUPERVISION OF A CHARTERED PATENT AGENT.

IN RESPONSE TO MANY REQUESTS WE HAVE NOW MADE ARRANGEMENTS TO EXTEND THE USE OF THIS DEPARTMENT TO OUR CUSTOMERS WHO WILL THUS RECEIVE NOT ONLY HIGHLY EFFICIENT ADVICE IN ALL MATTERS RELATING TO PATENTS, BUT ALSO THE ADVANTAGES OF OUR TECHNICAL AND PRACTICAL KNOWLEDGE AS MILITARY ENGINEERS.

UPON REQUEST WE SHALL BE PLEASED TO PREPARE AND FILE PATENT APPLICATIONS, GIVE OPINIONS AND REPORTS, AND CONDUCT ALL BUSINESS IN THIS CONNECTION.

GRAHAM & LATHAM, LTD.

# EXPLOSIVES of Every Description

For BLASTING, SPORTING and MILITARY PURPOSES.

TRADE MARK
CURTIS'S & HARVEY, Ltd. LONDON
DRAGON BRAND.

CONTRACTORS to H.M., COLONIAL and FOREIGN GOVERNMENTS.

EEST QUALITY ONLY.

ONLY MAKERS OF THE CELEBRATED—

"SMOKELESS ◇ DIAMOND"

"Amberite" & "Diamond ◇ Grain" Sporting Gunpowders.

CORDITE AND ALL KINDS OF MILITARY POWDERS.

CURTIS'S & HARVEY, 3, Gracechurch St. LONDON, E.C. HEAD OFFICE:

# ROYAL UNITED SERVICE INSTITUTION

## PATRON.

HIS MAJESTY KING GEORGE V.

## VICE-PATRONS.

General H.R.H. PRINCE CHRISTIAN OF SCHLESWIG-HOLSTEIN, K.G., G.C.V.O.
Admiral of the Fleet *Right Hon. Lord* JOHN HAY, G.C.B.

## PRESIDENT.

Field-Marshal H.R.H. The DUKE OF CONNAUGHT, K.G.

## VICE-PRESIDENTS.

Admiral *Rt. Hon. Sir* J. C. DALRYMPLE-HAY, Bart., G.C.B., D.C.L., F.R.S.
Field-Marshal the *Viscount* WOLSELEY, K.P., G.C.B., O.M., G.C.M.G. (1905)
Field-Marshal *Right Hon.* the *Earl* ROBERTS, V.C., K.G., K.P., G.C.B., O.M., G.C.S.I., G.C.I.E., V.D. (1905)
Vice-Admiral *H.S.H. Prince* Louis of BATTENBERG, G.C.B., G.C.V.O., K.C.M.G., A.D.C. (1906).
Colonel *Right Hon. Sir* J. H. A. Macdonald, K.C.B., V.D. (1908).
General *Lord* METHUEN, G.C.B., G.C.V.O., C.M.G. (1911).

## CHAIRMAN.

Brigadier-General H. H. WILSON, C.B., D.S.O., Director of Military Operations.

## VICE-CHAIRMAN.

Vice-Admiral A. M. FIELD, F.R.S.

## MEMBERS OF THE COUNCIL.

Lieut.-General *Sir* R. S. S. BADEN-POWELL, K.C.B., K.C.V.O.
Commander C. W. BELLAIRS R.N. (retired).
Rear-Admiral Honble. A. E. BETHELL, C.M.G., Director of Naval Intelligence.
Colonel the *Lord* BINGHAM, 5th Bn. The London Regiment.
Colonel J. H. BOR, C.M.G., A.D.C., R.M.A., Extra Equerry to The King.
Commander W. F. CABORNE, C.B., Royal Naval Reserve.
Colonel T. S. CAVE, C.B., V.D., Commanding South Midland Brigade, Territorial Force.
Colonel R. B. COLVIN, C.B., late Essex Yeomanry.
Major-General C. G. DONALD, C.B., Commanding Wessex Division T.F.
Major-General *Sir* T. FRASER, K.C.B., C.M.G.
Lieut.-Colonel *Honble.* T. F. FREMANTLE, V.D., The Buckinghamshire Battalion, The Oxfordshire and Buckinghamshire Light Infantry.
Colonel LONSDALE A. HALE, late R.E.
Colonel W. A. HILL, C.B. late 3rd Bn. The Gloucestershire Regiment.
Lieut.-General H. D. HUTCHINSON, C.S.I.
Admiral of the Fleet the *Lord* WALTER KERR, G.C.B.
Colonel *Honble.* O. V. G. A. LUMLEY, I/c Cavalry Records, York.
Brigadier General F. I. MAXSE, C.V.O., C.B., D.S.O. Commanding 1st (Guards) Infantry Brigade
Colonel A. W. MONEY, C.B., General Staff, War Office.
Admiral of the Fleet *Sir* G. H. U. NOEL K.C.B., K.C.M.G.
Colonel F. C. Romer, C.B., C.M.G. 4th Bn. Lancs. Fusiliers.
Rear Admiral R. G. O. Tupper, M.V.O.
Colonel F. D. V. WING, C.B., Assistant Adjutant General, R.A.

*Secretary, Curator and Chief Executive Officer.*

Lieut.-Colonel A. LEETHAM, F.S.A., late Royal Monmouthshire, Royal Engineers and 13th Hussars.

*Librarian.*

Major C. H. WELLY, late 1st Bn. South Staffordshire Regiment.

*Editor.*

Major H. A. L. H. WADE (late R.A.)

*Assistant Secretary and Curator*

2nd Lt. A. N. A. PINHEY, 12th Bn. The London Regt.

*Auditors*

Messrs. WILDE & FERGUSON DAVIE, Chartered Accountants, 61½, Fore Street, E.C.

The undermentioned can become members by intimating their wish to the Secretary, and either forwarding to him their subscription, or giving him a written authority on their bankers or agents for its payment:—Commissioned officers of the Royal Navy, Regular Army, Royal Marines, Special Reserve, Reserve of Officers, Militia, Indian and Colonial Naval and Military Forces, Yeomanry, Territorial Force, Royal Naval Reserve, Volunteer Corps, and Cadet Battalions and Corps, as published in the Official Navy and Army Lists, together with retired officers of the same whose names are retained in the Navy or Army Lists, and Naval Cadets, and Cadets of the Royal Military Academy, Woolwich, Royal Military College, Sandhurst, and Royal Military College, Kingston, Canada, on the recommendation of their commanding officers.

Officers retired from the various Services enumerated above, whose names do not appear in the Navy or Army Lists, are eligible for election by ballot on the recommendation, on personal knowledge, of two members of the Institution.

The terms of subscription are:—

Annual. £1 1s. 0d. entrance; and £1 1s. 0d. annual, payable on the 1st January each year.

Life. £15, payable in one sum.

Life. £15 15s., payable in three instalments of Five Guineas each; the first on joining the Institution, the others on the 1st January of each of the succeeding two years.

Members joining after the 1st October in any year are not called upon for any subscription the following year.

An extra payment of Ten Shillings entitles a member in the United Kingdom to the loan of Four Volumes at a time from the Library for a period of twelve months from the date of the subscription.

When a member desires to pay his subscription through his banker or agent, he should send to the Secretary a written authority as follows:—

*To (Banker or Agents)*

On receipt of this order please pay to Secretary, Royal United Service Institution, or order, my subscription to that Institution (according to the terms above).

*Name in full.*

*Rank, Ship, or Regiment.*

*Address to which Journals and other communications should be sent.*

Officers of the Indian and Colonial Naval and Military Forces, temporarily in the United Kingdom, may become members for a period of six months on payment of Ten Shillings and Sixpence, or One Guinea for a period of twelve months; members of the United Service Institution of India, for six months on payment of Five Shillings.

The Institution contains the best professional Library in the United Kingdom; an excellent collection of Maps and Charts; Reading and Smoking Rooms provided with the leading papers, periodicals, and writing materials; an interesting Museum; and a Theatre in which lectures upon professional subjects, followed by discussion, are frequently given and is open daily from 10 to 7 except Sundays, Christmas Day and Good Friday.

The Journal, published monthly, is sent post free to all members. It contains the lectures given in the Theatre, articles on professional subjects, naval and military notes, book notices, &c.

# The Royal United Service Institution,

WHITEHALL, S.W.

---

## FORM OF BEQUEST.

**I Bequeath** to THE ROYAL UNITED SERVICE INSTITUTION

the sum of £ _____ (free of duty),

or (in case of a specific legacy) my _____ (free of duty),

to be applicable for the general purposes of such Institution.

**And I Declare** that the receipt of the Secretary, or other proper officer for the time being of such Institution, shall be a sufficient discharge for the same.

# A SPORTING OFFER ! !

Our Special "TRI-TEST" Cricket Bats are absolutely unapproachable, and we have therefore set aside a certain number for sale at **21/-** instead of 25/- These bats are made from the finest Willow selected by our own expert, and we make this offer with a view to inducing you to test the splendid quality of our goods.

Come & select your own Bat.

Sportsmen in England or abroad will be supplied immediately on receipt of remittance. We will pay Carriage in the United Kingdom, but for Bats sent abroad, to cover carriage, 2/- extra should be forwarded with remittance.

**If a Good Thing is worth having, have it at once and write without delay.**

*Special Terms for Regimental Teams, Clubs, Schools & Colleges. Write for Catalogue.*

**Manufacturers ALLAN STRAKER & Co.,**
**17 & 18, BASINGHALL STREET, LONDON, E.C.**
**Telephone No. 9382 London Wall.**

***HIRE PURCHASE.***

## Motor Cars, Carriages, Guns, Furniture,

OR ANY ARTICLE REQUIRED,
on the three years' system of payment by instalments; or for cash at liberal discounts.
WRITE OR CALL FOR PARTICULARS.

**ARMY & NAVY HOUSE FURNISHING CO., Ltd.**
*Established* 1883. **Capital £50.000.** **18, Regent St., Waterloo Place, S.W.** Tele. 4798 Gerrard.
Directors { Colonel C. E. MACDONALD, Chairman. Captain A. J. BURNETT. Mr. F. G. CHRISTOPHER. Colonel H. GODFREY MORGAN, C.B., D.S.O., Managing Director.

Telephone: **4430** GERRARD
Telegrams: "CAPTAINCY, LONDON."

MILICODE USED.

## HAWKES & COMPANY, LTD.,

**14, PICCADILLY, LONDON.**

Military and Civil Tailors and Outfitters,
Helmet, Cap and Accoutrement Makers.

ORIGINAL MANUFACTURERS OF THE CORK PATENT HELMET

**On Sale Everywhere.**

# THE ARMY ANNUAL

## AND YEAR BOOK

# 1911

EDITED BY

**Lieut.-Col. H. M. E. BRUNKER**

*(P.S.C. Honours). Author of "Notes on Organization and Equipment," etc.*

**CONTENTS**

Army Estimates, 1911-12.
The Indian Army Estimates.
The War Office.
His Majesty's Letters Patent constituting the First Army Council.
Orders in Council.
Army Finance.
The Payment of the Army.
1. The Army Pay Department.
2. Payment of Regular Troops.
3. Payment of Troops.
4. Payment of Bills and Claims.
System of Finance of the Army in India.
Distribution of Troops in the United Kingdom.
The Expeditionary Force.
Special Reserve.
Territorial Divisions and Brigades.
The Diminishing Army.
Special Reserve. Infantry.
Forces of the Self-Governing Dominions.
Dominion of Canada.
Union of South Africa.
Dominion of New Zealand.
Summary of the Armies of Foreign Powers.
The Air Battalion. Royal Engineers.
Signal Squadrons for Cavalry.
Signal Companies for Divisions.
Signal Companies in India.
"A Description of the French and German Artillery; their Armament, Training and Tactics, as compared with our own."
1. Description.
2. Armament.
3. Training and Tactics.
4. Comparison.
Provision of Officers for the Army.
Proposed System of Transport of (*a*) Supplies and (*b*) Ammunition in the Field.
Requisitions in War.
Recruiting.
Health of the Army.
Recent Publications of Military Interest.
Cavalry Training and Manœuvres, 1910.
Inter-Divisional Manœuvres.
Army Manœuvres, 1910.
The National, late Veteran, Reserve.
Notes on the Employment of Mechanical Transport as Supply Columns at the Irish Command Manœuvres, 1910.
Training of Territorial Forces, 1910.
Commissions in the Regular Army.
Aerial Navigation.
Items of Interest.
Service Questions in Parliament.
Definitions.
Index.
Map.
Sketch Map of the Area of Operations in the Army Manœuvres.

**LONDON: WILLIAM CLOWES & SONS, LIMITED, 23, COCKSPUR ST., S.W.**

Established **NOTICE OF REMOVAL.** January, 1894

Owing to the VERY RAPID GROWTH of their PUBLISHING and Advertising Departments,

# - THE - GILBERT-WOOD PRESS

**Naval and Military Publishers, etc.**

(With which is Incorporated "The Naval & Military Press")

Late of DACRE HOUSE & GRANVILLE HOUSE, ARUNDEL STREET, STRAND, LONDON, W.C.

Have Removed to MUCH LARGER and more Convenient PREMISES:—

**NORFOLK HOUSE,** (Bottom of Arundel Street,

**VICTORIA EMBANKMENT,** facing the Temple Station). W.C.

## To AUTHORS,

**THE GILBERT-WOOD** advice on the Publication of **BOOKS,** and also to undertake Publishing

*For terms, write to or call*

**O. GILBERT-**

Member of the Council of the Imperial Maritime League.

## OFFICERS, &c.

**PRESS** are open to give expert **NAVAL AND MILITARY** the Printing, Binding and of same.

*upon the Governing Director—*

**WOOD, F.R.G.S.**

Member of the Royal Society of Arts.

Member of the Institute of Journalists, etc., etc.

NORFOLK HOUSE, VICTORIA EMBANKMENT, LONDON, W.C.

(Bottom of Arundel St., facing Temple Station); or 'phone 4680 Gerrard, or wire to "Gilberwood," London.

# FOR THE SERVICES

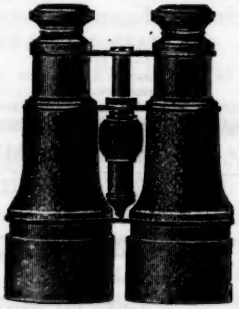
## DEPENDABLE OUTDOOR ACCESSORIES AT

# GAMAGES

**THE MARKET PLACE OF THE WORLD.**

**The "Gamage" Night Marching Compass.** Snap Hunter Case. Military Pattern. Illuminous Glass Dial and Bar Needle with sights divided every 5° and figures every 20° to 360°. Check and fixed stop action. Finest compass at the price ever put on the market.

Price **21/6** complete in case with sling for shoulder.



**The "Holborn" Field Glass.** Gives remarkable definition. Made for hard wear. Covered Black Morocco. Sun Shade, and in case with Neck Sling complete.

Price **22/6.**

A.W. GAMAGE Ltd HOLBORN. & BENETFINK & Co Ltd CHEAPSIDE.

## NAVAL AND MILITARY BUSINESS DIRECTORY.


**Jones, Chalk & Dawson,**

TAILORS & MILITARY OUTFITTERS,

**6, Sackville Street, London, W.**

**HUMPHREYS & CROOK,**

**Tailoring Dept.:**
3, HAYMARKET, PALL MALL.

**Equipment & Taxidermy Dept.:**
2 & 3, SUFFOLK STREET, PALL MALL.

**E. TAUTZ & SONS,**

BREECHES MAKERS,
SPORTING TAILORS.

ONLY ADDRESS:
**485, Oxford Street, W.**

Telephone: 3633 Gerrard.
Telegraphic Address: "Buckskins, London."

**CRAIG & DAVIES**

**MILITARY & CIVIL BOOTMAKERS,**

FRANCIS STREET, WOOLWICH
45, GLASSHOUSE ST., REGENT ST., W.;
40, High St., Aldershot; and York Town, Camberley.

**Memorial Brasses & Bronzes.**

**J. WIPPELL & CO. LTD.**

**EXETER,** and 4 & 5, Duncannon St., **LONDON.**

*A Fully Illustrated List on Application.*

ESTABLISHED 1820.

**D. WILLIAMSON,**

**Practical Gunmaker,**
**3, Waterloo Bridge Road, LONDON.**
GUNS, RIFLES & AMMUNITION.
*FULL Price List on Application.*


## NAVAL AND MILITARY SCHOOLS, TUTORS, &c.


**Mr. E. CARLISLE, M.A.** (Cantab)
AND
**Major M. H. GREGSON** (late R.E.)

Prepare Candidates for all Army Examinations at

**5 & 7, Lexham Gardens, W.**

**PRINCESS HELENA COLLEGE**
**EALING, W.**

President—H.R.H. The PRINCESS CHRISTIAN.
Visitor—The LORD BISHOP OF LONDON.
Principal—MISS PARKER.

BOARDING and DAY SCHOOL for the Daughters of Gentlemen. Special attention to Languages. English, Art, Music. Holidays arranged for if required. Large Grounds. Fees, **66** Gns. to **75** Gns. a year. Officers' Daughters **66** Gns. a year.

**RAMSGATE.**

**Chatham House Preparatory School.**

Founded 35 years.

Grounds 20 acres; private chapel; gymnasium; large workshops; trained nurse; fees moderate and inclusive. Illustrated Prospectus on application.

**ALL ARMY EXAMINATIONS**

Work now proceeding.

**Col. E. KENSINGTON, p.a.c.** (LATE R.A.)
29, MEDINA VILLAS, HOVE.

**F. R. HORA, B.A., B.Sc.,**
69, ST AUBYNS, HOVE.

**Medical, Legal, Navy & Public School Examinations.**

Mr. WILLIAM H. TAYLOR
(*1st LL.B. London.*)

Coaches for all Entrance Examinations for Public Schools, etc., etc.

**2, Middle Temple Lane, London E.C.**

**NOTICE OF REMOVAL.**

**MR. C. GILBERT-WOOD,** MILITARY and NAVAL **PUBLISHER,**
Late of Arundel Street),

Has now moved to larger & more convenient premises: **Norfolk House, Victoria Embankment, London, W.C.,** (Bottom of Arundel Street, facing the Temple Station.)


## NAVAL AND MILITARY HOTEL DIRECTORY.


**BOURNEMOUTH.**

**Royal Bath Hotel.**

OVERLOOKING PIER.

The only Hotel on the East Cliff.

**ALDERSHOT.**

**THE ROYAL HOTEL.**

The oldest established in the town.
Close to Artillery, Badajos, Talavera and Salamanca Barracks, also Cavalry Barrack Gates. Five minutes from South Camp and Aldershot Town Station. Excellent cuisine. Attendance perfect. Terms on application, and most moderate Telephone No. 17.
A. HEARNE, Proprietor.

**RAMSGATE.**

**The Granville Hotel.**

Beautifully situated on the high cliffs overlooking Sea and Public Gardens. A magnificent position. The most comfortable Seaside Hotel on the South Coast.
Excellent and complete Turkish Bath, with Sea Water Plunge; also Ozone and other Baths. Hot and Cold Sea Water in Bath Rooms. Electric Light everywhere.

**DROITWICH: England's Brine Baths Spa.**

2½ Hours from London. Central for all districts.

LUXURIOUS Modern Baths and Swimming Baths. Supplied by NATURAL BRINE SPRINGS. Unequalled for treatment of RHEUMATISM, GOUT, SCIATICA, NEURITIS, LUMBAGO, &c. Lovely Country. Good Hotels. Golf. Illustrated Booklet (post free) from J. H. Hollyer, 48, Corbett Estate Offices, Droitwich.

## NAVAL AND MILITARY PUBLISHERS & PUBLICATIONS.


**HUGH REES, Ltd.,**

*Military and Naval Booksellers, Stationers and Publishers,*

**119, PALL MALL, LONDON, S.W.**

**And at CAMBERLEY, SURREY.**

Military and Naval Books of all descriptions are kept in Stock and can be supplied without delay.

**PROBSTHAIN & CO.**

Oriental Booksellers and Publishers.

**41, Great Russell Street, London, W.C.**

Large Stock of Oriental Books—India, China, Japan, Africa, Persia, Turkey.
Oriental Grammars and Dictionaries.

*Special Catalogues post free on application.*

**FRANCIS EDWARDS** (Bookseller),

Has now removed to larger premises, at

**75, High Street, Marylebone, London, W.,**

And has on view 100,000 volumes of books in all classes of literature arranged and grouped for easy reference. Special Catalogues, Books on India, Naval and Military Literature, &c., &c.

**Swan, Sonnenschein & Co., Ltd.,**

**25, HIGH STREET, BLOOMSBURY, W.C.**

**The Special Campaign Series,**

Including all important Campaigns; specially designed to meet the requirements of Army entrance and promotion examinations.

Cr. 8vo. Cloth, 5s. net each.

CATALOGUES FREE ON APPLICATION.

**"The Shipbuilder"**

**Price 6d. net.**

The Quarterly Journal of The Shipbuilding, Marine Engineering and Allied Industries.

*(Published 15th January, 15th April, 15th July, & 15th October.)*

**C. GILBERT-WOOD, Norfolk House, Victoria Embankment, London, W.C.**

**"THE CAVALRY JOURNAL."**

*QUARTERLY.* **Price 2s. 6d. Net.**

Published by Authority of the Army Council, and under the Direction of General Sir J. D. P. French, G.C.V.O., K.C.B., K.C.M.G., Colonel of 19th Hussars, Inspector-General of the Forces, assisted by Lieut.-General *Sir* R. S. S. Baden-Powell, K.C.B., K.C.V.O.

JANUARY, APRIL, JULY and OCTOBER.

C. GILBERT-WOOD, Norfolk Street, W.C.

**THE 'OLYMPIC' & 'TITANIC'**

**SPECIAL SOUVENIR NUMBER**

OF "THE SHIPBUILDER."

**NOW READY. Price 2/- net. (post free 2/4)**

Contains full particulars, plans and special plates illustrating these, the largest vessels in the World. Limited Edition. Copies should be secured at once.

C. GILBERT-WOOD, Norfolk House, Victoria Embankment, W.C.

*"To preserve Peace be prepared for War."*

**The Indian Volunteer Record And Military News,**

*London, Calcutta, and Bombay.*

A Fortnightly Review of Indian Military Matters, printed in India.

"By far the smartest little service paper published in the Indian Empire."

EDITOR: CAPTAIN JAMES WYNESS.

London Managing Editor: C. GILBERT-WOOD, F.R.G.S.

**ARMY & NAVY JOURNAL.**

Established 46 Years.

**PUBLISHED WEEKLY, 20, VESEY ST. New York, N.Y., U.S.A.**

Recognised at home and abroad as the leading Military and Naval periodical in the United States.

Subscription £1 9s., including postage.

Sample copy sent on request.

**The GILBERT-WOOD PRESS**

(C. GILBERT-WOOD, F.R.G.S., M.R.S.A., M.J.I., Sole Proprietor).

Newspaper Proprietors, Publishers, Lithographic & Letterpress Printers, etc.,

NORFOLK HOUSE, VICTORIA EMBANKMENT, *LONDON, W.C.*

SOLE Advertisement Contractors to this Journal and also to most other Official Service Publications.

Telegrams: GILBERWOOD, LONDON. Telephone: 4680 Gerrard.


## NAVAL AND MILITARY SOCIETIES AND CHARITIES.

**MARINE SOCIETY.**

**TRAINING SHIP "WARSPITE,"**

PATRON - - H.M. THE KING.

The Society maintains the Training Ship "Warspite" at Greenhithe.

CONTRIBUTIONS EARNESTLY SOLICITED.

Annual Subscriptions and Donations gratefully received by the Secretary, Lieut. H. T. A. BOSANQUET, R.N., Clarks Place, Bishopsgate Street, E.C.

THE

**'ARETHUSA' & 'CHICHESTER'**

TRAINING SHIPS FOR POOR BOYS are much in need of Funds.

President - THE EARL OF JERSEY, G.C.B.

Gifts Thankfully Received by Secretaries; 164, Shaftesbury Avenue, London, W.C

**Metropolitan Drinking Fountain and Cattle Trough Association.**

The Committee very earnestly APPEAL for LIBERAL HELP to continue a work which has done so much to promote Temperance and alleviate suffering.

CAPT. W. SIMPSON, *Secretary*, 70, Victoria Street, S.W.

**THE SOLDIERS' AND SAILORS' FAMILIES ASSOCIATION.**

To help the Wives and Families — of Soldiers and Sailors. —

*Secretary, 23, Queen Anne's Gate, S.W.*

**Dr. Barnardo's Homes**

Maintain **9,400** Children.

**300 Boys constantly in training FOR THE NAVY.**

Cheques payable "Dr. Barnardo's Homes."

Head Offices, 18 to 26, STEPNEY CAUSEWAY, E

THE BEST WAY TO CANADA is surely the one that affords the maximum of benefits and comforts at the minimum of cost and risk. Disinterested advice free. The Salvation Army offers choice of finest, fastest, and cheapest boats. Guarantees work (when required). Arranges Weekly conducted parties. Special reserved carriages for women. Has unequalled organisation co-operating with Governments.—Write or call, Colonel D. Lamb, 122, Queen Victoria St., London, E.C. Branches—5, Denmark St., Bristol; 170a, London Rd., Liverpool; 203, Hope St., Glasgow.

# DENT'S WATCHES.

(Gold from **£10 10 0**) (Silver from **£5 5 0**)

BY APPOINTMENT.

**Recent Awards: Franco-British Exhibition—**

**3 Grand Prizes and 1 Gold Medal.**

**DENT'S CLOCKS** (HOUSE, ASTRONOMICAL AND TURRET.)
The best Selection in London.

**DENT'S MARINE CHRONOMETERS.** As supplied to the Royal and principal Foreign Navies.

**DENT'S SHIPS' LIQUID COMPASSES.** Exclusively used in the Royal Navy.

**JEWELLERY AND SILVER.** A varied assortment of useful articles—suitable for Presents.

## E. DENT & CO., LTD.,

Watch and Clock Makers by Special Appointment to H.M. the King.

Makers of the Great Westminster Clock (Big-Ben), and sole Custodians since its erection.

DENT

TRADE MARK.
CAUTION.—No instrument from No. 38,000 upwards is genuine without the above Trade Mark.

**ONLY PLACES OF BUSINESS—**

**61 STRAND, AND 4 ROYAL EXCHANGE.**

LONDON.



By Royal Warrant.

THE

## GOLDSMITHS & SILVERSMITHS COMPANY, Ltd.

Famous the World over for

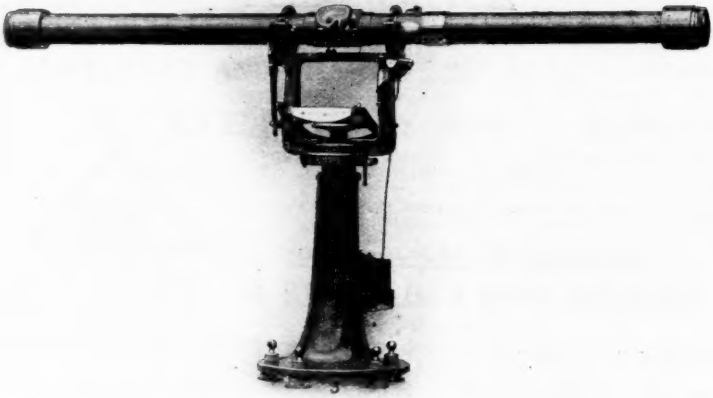
DESIGN. QUALITY. VALUE.

**CUPS,**
**BOWLS,**
AND **TROPHIES**
IN
GOLD, SOLID SILVER, SILVER GILT,
SUITABLE FOR PRIZES.

**MODELS & STATUETTES**
PREPARED FROM
PHOTOGRAPHS
OR LIFE.

The Public supplied direct at Manufacturers' Cash Prices.

**112, REGENT STREET, W.**



THE BARR AND STROUD RANGEFINDER.

F] Q. TYPE. 2·74 m. (9′ 0″) BASE. ON MOUNTING N.M. TYPE.

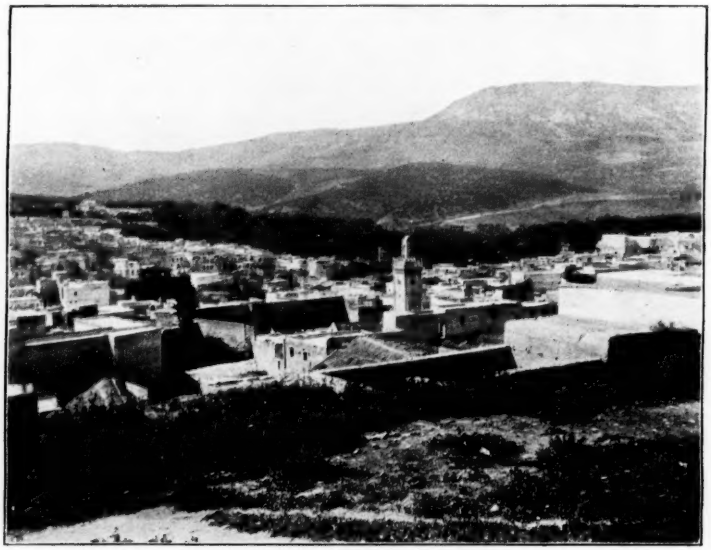
For use on board Battleships and Cruisers.

Approximate uncertainty of observation :—

1 yard at 1,000 yards.
20 yards at 5,000 yards.
40 yards at 7,000 yards.
125 yards at 12,000 yards.

BARR AND STROUD,
ANNIESLAND,
GLASGOW.

FEZ: The Northern Bastion.



FEZ: looking towards Jebel Zalagh.

Republished by permission of Messrs Harrison & Sons, from the
'Journal of our Mission to Fez," by Colonel Count Gleichen.

# ROYAL UNITED SERVICE INSTITUTION

JUNE, 1911

## SECRETARY'S NOTES.

### I.—OFFICERS JOINED.

The following officers joined the Institution during the month of May:—

Paymaster-in-Chief C. E. Gifford, C.B., R.N., retired.
Rev. A. H. Boyd, M.A., Chaplain (T.F.).
Captain A. V. Jarrett, York and Lancaster Regiment.
Captain G. T. Hankin, Officers Training Corps.
Second-Lieutenant N. J. S. Huntington, 6th Battalion Rifle Brigade.
Engineer Rear-Admiral J. J. Stuart, R.N.
Captain V. Le N. Foster, Officers Training Corps.
Second-Lieutenant G. McM. Robertson, North Staffordshire Regiment.
Lieutenant D. J. D. Noble, R.N.
Lieutenant R. F. H. Wallace, Royal Highlanders.

### II.—CORONATION SEATS.

The ballot for the extra seats, which were obtained from H.M. Office of Works for the Foreign Members, for the Coronation Procession and the Royal Progress, took place on June 1st, and the tickets for these will be issued as soon as they are received from H.M. Office of Works with the other tickets.

All further information will be given either on the tickets themselves or on the notice accompanying same.

### III.—CORONATION.

The Board of Trade have kindly granted permission to any Members who desire to witness the Coronation and Royal Progress Processions from the Institution building, to pass through their entrance on the Embankment into Whitehall Gardens.

### IV.—ADDITIONS TO THE MUSEUM.

(6325.) Key Bugle of the Royal South Gloucester Militia, early 19th Century.—*Given by Colonel W. P. Burges and the Officers, 3rd Battalion Gloucestershire Regiment.*

(6326.) A Persian Iron Mace with fluted head and damascened with brass.—*Given by Lt.-Colonel W. H. M. Jackson.*

(6327.) Shako with black cock's feather plume of Light Horse Volunteer Cavalry, about 1820.—*Given by Mrs. F. E. Clarke.*

(6328.) A Scarlet Pelisse with silver lace and buttons of Light Horse Volunteer Cavalry, about 1820.—*Given by Mrs. F. E. Clarke.*

(6329.) A Line Engraving published by Colnaghi and Co. in 1813, drawn by H. L'Eveque and engraved by Charles Heath, entitled "The Siege of Badajos."

## V.—REGIMENTAL COLOURS.

The Secretary is prepared to arrange for the repairs to Regimental Colours and Cavalry Standards, in service or otherwise, at the Institution. A very large number have been received during the past seven years.

## VI.—CHANGE OF RANK OR ADDRESS.

The attention of Members is called to the necessity for communicating any change of address or rank to the Secretary. It is essential that such changes should be made in writing. If such changes be not notified, Members will themselves be responsible if their Journals fail to reach them through being wrongly addressed, and officers are requested to write their initials and names distinctly on such communications. Several signatures have recently been received which it has been quite impossible to decipher, while recently several notifications of change of address were received without signature.

## VII.—NEW MEMBERS.

A form is inserted in this Journal, and will be repeated regularly, for the benefit of those officers who may wish to join the Institution. The filling up of the form and its transmission to the Secretary is all that is necessary in the case of officers appearing in the Official Active Lists. The Council hope that Members will circulate the forms. Officers joining after the 1st October in any year are not called upon for any subscription the following year.

## VIII.—LECTURES.

Members desiring to deliver lectures in the Theatre or contribute papers in the Journal are requested to submit them for the perusal of the Council, through the Secretary. The Council specially hope that they may receive the offer of lectures on Naval Subjects.

## IX.—THE WAR GAME.

The Home District Military Society having been recently dissolved, have presented to the Institution their collection of maps and materials for playing the War Game, and these have now been sorted and stored. The Council has arranged that sets of maps and pieces can be lent to any Regular, Special Reserve or Territorial Unit or recognised Society of the same, at a fee of 10s. per occasion, the Unit or Society paying the carriage both ways and making good any loss or damage incurred. Umpires, Assistant Umpires, schemes and all other arrangements to be made by the parties engaged. Should it be desired, a room at the Institution can be placed at the disposal of players after 5 p.m., at a charge of 10s. per evening, but not less than 10 days' notice must be given in respect of it.

# PRINCIPAL ADDITIONS TO LIBRARY DURING MAY, 1911.

*Memoirs of Captain Rock, the celebrated Irish Chieftain, Written by himself.* Crown 12mo. (Presented.) (Longman, Hurst, Rees, Orme, Brown and Green). London, 1824.

*The American War of Secession, 1863—Chancellorville and Gettysberg.* By Colonel H. P. DALBIAC. Crown 8vo. 5s. (Presented). (George Allen and Co., Ltd.) London, 1911.

*La Marine Moderne.* By L. E. BERTIN. Crown 8vo. 2s. 8d. (Illustrated). (E. Flammarion). Paris, 1910.

*La Marine de Guerre.* By A. S. JOURDAN. Imp. 8vo. 7s. 6d. (Illustrated). (Librairie Vuibert). Paris, 1910.

*A Holiday in South Africa.* By the Rt. Hon. Sir H. MORTIMER DURAND, G.C.M.G., etc. Crown 8vo. (Presented). (William Blackwood and Sons). Edinburgh, 1911.

*War Rights on Land.* By J. M. SPAIGHT. 8vo. 12s. (Presented). (Macmillan and Co., Ltd). London, 1911.

*Umpiring.* By Colonel G. T. FORESTIER-WALKER, A-Q-M-G, Southern Command. (Aldershot Military Society). Crown 8vo. 6d. (Hugh Rees, Ltd). London, 1911.

*Das Internationale öffentliche Seerecht der Gegenwart.* By F. PERELS. 8vo. 7s. 3d. (E. S. Mittler and Sohn). Berlin, 1903.

*Das Seerecht.* By Dr. KARL H. BERNSTEN. 8vo. 4s. 9d. (Franz Vahlen). 8vo. Berlin, 1911.

*Die Feuerprobe der russischen Armee im Kriege, 1904-5.* By Lieut. RICHARD ULLRICH. 8vo. 5s. 5d. (R. Eisenschmidt). Berlin, 1910.

*L'Aviation aux Armées et aux Colonies.* By General H. FREY. 8vo. 2s. 8d. (Berger-Levrault). Paris, 1911.

*Bateaux Sous-Marins á grande vitesse sous l'eau.* Par C. Del PROPOSITO avec un projet de M. C. LAURENTI. Imp. 8vo. (Illustrated), (Presented). (Augustin Challamel). Paris, 1910.

*De Re Militari.* By FLAVIUS VEGETIUS. Fc. fol. (Illustrated). (Presented). n.p. n.d.

*For Remembrance and in Honour of those who lost their lives in the South African War, 1899-1902. Lest we forget.* By Colonel Sir JAMES GILDEA. 4to. £2 2s. Illustrated (Presented). (Eyre and Spottiswoode, Ltd). London, 1911.

---

*Peace or War East of Baikal?* By E. J. HARRISON 8vo. 21s. (Illustrated). (Kelly and Walsh, Ltd.). Yokohama, 1910.

---

*1911. Kent—The Boy Scout's Directory.* Crown 8vo. (Presented). ("Courier" Co., Ltd). Tunbridge Wells, 1911.

---

*Armée Russe—La nouvelle Instruction pour la Conducte du Combat d'Infanterie, 1910.* Traduit du russe par le Chef de bataillon Painvin. 8vo. 1s. (Henri Charles-Lavauzelle). Paris, 1911.

---

*The Revolt in Central India 1857-59.* Compiled in the Intelligence Branch Division of the Chief of the Staff, Army Head-quarters, India, By Major R. G. FURTON. 8vo. (Presented). (Government Monotype Press). Simla, 1908.

---

*Handbook of the Medical Services of Foreign Armies. Part V. Italy.* Crown 8vo. 6d. (Presented). (H.M.'s Stationery Office). London, 1911.

---

*The Voyage of the "Why Not" in the Antarctic. The Journal of the Second French South Polar Expedition, 1908-10.* By Dr. JEAN CHARCOT. English version by PHILIP WALSH. Imp. 8vo. 20s. (Illustrated). (Hodder and Stoughton). London, 1911.

---

*British Statesmen of the Great War 1793-1814.* The Ford Lectures for 1911. By the Hon. J. W. FORTESCUE. 8vo. 7s. 6d. (Clarendon Press). Oxford, 1911.

---

*Metternich.* By G. A. C. SANDEMAN. 8vo. 10s. 6d. (Methuen and Co., Ltd). London, 1911.

---

*The real Captain Kidd.* By Sir CORNELIUS N. DALTON. Crown 8vo. 5s. (William Heinemann). London, 1911.

---

*England and the English from an American point of View.* By PRICE COLLIER. Crown 8vo. 2s. 6d. (Duckworth and Co). London, 1911.

---

*A Handbook of British and Foreign Orders, War Medals, and Decorations awarded to the Army and Navy.* By A. A. PAYNE. Imp. 8vo. 31s. (Illustrated). (J. W. Northend). Sheffield, 1911.

---

*Memoirs of General Sir Philip Bainbrigge, K.C.B., and Reminiscences of the Peninsula War.* 8vo. (Presented). n.p., n.d.

THE JOURNAL
OF THE
ROYAL UNITED SERVICE INSTITUTION.

VOL. LV. JUNE, 1911. No. 400.

[*Authors alone are responsible for the contents of their respective Papers.*]

# THE CRIMEA REVISITED

BY MAJOR-GENERAL H. T. ARBUTHNOT, C.B.

On Wednesday, 1st March, 1911.

General LORD WILLIAM F. SEYMOUR, K.C.V.O.
in the Chair.

BEFORE I commence my lecture, I should like to say how much pleased I am to see so many of my old comrades of the Crimea here this afternoon. I do not know if any of the men who are here were in any regiment or battery attached to the Second Division. If they were, it is just possible that some of them were on picket together during that eventful winter. I see that some of them have the four clasps; therefore some, at all events, were at Inkerman, and were, no doubt, engaged in the field attack. I hope some of them may have been with me during that period.

I joined at Woolwich as a 2nd-Lieutenant in the Royal Artillery in August, 1853, and was posted to the second company, then on the Roster for foreign service. Quite early in the year 1854 the company was converted into a Field Battery (there was no Field Artillery proper in those days) and placed under orders for the East to join the Expeditionary Force which was being sent out. We embarked at Woolwich on March 29th, 1854, arrived at the Bosphorus on May 6th, and landed at Scutari on May 8th. We were first quartered with other

troops in a large Turkish barrack at Coolali; there was nothing remarkable about that barrack except its extreme filth and the extraordinary number of fleas which pervaded the whole place. We were therefore very glad when in about ten days' time we were moved out and encamped in a very shady position near a cypress grove; the Battery was then attached to the 2nd Division under Sir de Lacey Evans. In June and July the Army was moved up to Bulgaria. The 2nd Division was encamped near the village of Pravadi, about 20 miles from Varna, on the extreme left of the English lines facing North. Towards the end of August the Army embarked for the Crimea, and after sailing about in the Black Sea for a fortnight or more, the disembarkation commenced on September 14th, but owing to a storm which sprang up on the night of the 14th, which made it impossible to land horses, it was not completed till the 18th, and on the 19th the march towards Sevastopol commenced, and on the next day, the 20th, was fought the battle of the Alma. I always had a hankering to revisit the spot where I spent so many months of my early soldiering days, but the opportunity for doing so only occurred last year, and I propose this afternoon to give you an account of the wonderful reception I met with on the part of the Russians, and to give you my impression of the ground as it now is, as compared to what it was when covered with the English Army in 1854-55, with some account of the stirring events in those years.

I was saying just now that the opportunity for revisiting the Crimea only occurred last year, and it came about in this way: A brother officer of mine, Colonel Jocelyn, is engaged in writing a history of the Royal Artillery from the year 1853 to 1863, and as I have the great good fortune to be one of the few surviving Royal Artillery officers who went through the whole of the Crimean War, he was constantly asking me questions about it, and I suggested to him that he ought to go out and see the ground for himself, and it was arranged that we should go out together in the spring of last year. I put myself in communication with Lieutenant-General Yermoloff, the Military Attaché to the Russian Embassy in London; he took the greatest interest in my proposed visit, and at once communicated with the authorities at St. Petersburg, and did everything in his power to ensure that my visit should be both agreeable and instructive, and it was largely due to his good offices that I met with such a splendid reception. At the last moment circumstances prevented Colonel Jocelyn from accompanying me; but I had gone too far to draw back, and I was afraid I should have to go alone, but luckily my son, who is a Major in the Royal Berkshire Regiment, the 1st Battalion of which, the old 49th, was one of the Regiments of the 2nd Division, arrived home from India on long leave a fortnight before my departure, and he agreed to

go with me, and to him I am indebted for the photographs which I shall presently show you on the screen.

### ARRIVAL IN THE CRIMEA

We proceeded *viâ* Marseilles to Constantinople and thence by a Russian steamer direct to Sevastopol, and on arrival there were met by the British Consul, who took us to our hotel. Early the next morning I was visited by Captain Dobrovolsky of the Russian Navy, who had been deputed by the Governor of the Crimea, under directions from St. Petersburg, to wait upon me, with instructions to show me everything I wanted to see, and to take me anywhere I wanted to go; at the same time I was to be at perfect liberty to go alone anywhere I liked and to take what photographs I liked, and during the whole time I was at Sevastopol there was not the slightest vestige of espionage in any way whatever. The selection of Captain Dobrovolsky to wait on me was a great compliment, as he is the officer attached to the Court when the Czar visits the Crimea. The Grand Duke Alexander Michaelovitch, who is in charge of the Crimean battlefields and relics, also wired to his Chamberlain Gordinski to do all he could to make my visit as agreeable as possible, so it began under the happiest auspices. After a little general conversation, Captain Dobrovolsky asked me what I should like to do on that first day of my visit. I naturally replied that my first duty would be to call on the Governor and others in authority; but he replied: "Not to-day; we will do that to-morrow." At the time I could not understand his reason for this, but I ascertained afterwards it was because he wished to apprise the Governor and others of my intended visit, so that I might be received with all due honour. He suggested that we should go to the Museum in the morning, and in the afternoon go round the original defences of Sevastopol as they existed at the time of the Siege. Chamberlain Gordinski did the honours of the Museum, of which he is in charge. It is an interesting museum, consisting entirely of reminiscences of the war—all the projectiles and munitions of war used at that period —articles picked up on the battlefields—portraits of the Generals in command—models of the forts and ships and so on.

### THE DEFENCES OF SEVASTOPOL

In the afternoon Chamberlain Gordinski, accompanied by the Engineer Officer in charge of the lines, arrived at my hotel with two carriages to take us round the defences. I should mention here that it had been intended to celebrate the Jubilee of the war in 1904, but the Japanese War prevented it, and it is now proposed to have a Diamond Jubilee in 1914. But with a view to the Jubilee, the lines defending Sevastopol

were restored exactly as they were at the time of the siege, and one of the forts, the Flagstaff Battery or Bastion-du-Mât, was also restored, built up with gabions and fascinès, and mounted with old guns of that period. At the time of the siege every regiment in Sevastopol had its allotted place in the defence, and now a brass plate with the name of the regiment on it is let into the parapet of that part of the lines which that particular regiment had to defend. We drove right along the lines, commencing at the extreme left of the Russian position, resting on the Harbour, to the Flagstaff Battery, which was where the English left attack ended and the French attack began, visiting the Malakoff and the Redan as we went along. I was immensely struck with the extraordinary strength of the Malakoff Tower, with the bomb-proof casemates slightly in rear, where the defenders could remain in perfect safety until called out to repel an attack, but once the attacking party got a firm footing in the Tower, they would be able to hold it because it was not open in the rear, so that when the defenders were driven out no fire could be brought to bear on the attacking party. But not so the Redan; this work was open in the rear, so that if the attacking party got a footing in the work an overwhelming fire could be brought to bear upon them from the rear. It is very easy to be wise after the event, but it seems to me to have been an error of judgment to have attacked the Redan at all. The Redan is commanded both by the Malakoff and Flagstaff Battery. On the day of the assault the Flagstaff Battery was left practically unmolested, but had a successful attack been made on it by French and English, in combination, the Redan would have been untenable. The visit to these Russian defences, as they were 56 years ago, was most interesting, for it shows what a formidable task the Allies undertook in attacking so strongly defended a position with the means then at their disposal. Close to the Flagstaff Battery there is a public garden called the "Boulevard Historique"—why, I do not know. Chamberlain Gordinski had ordered tea for us there, so after completing the inspection of the defences we repaired there and partook of a most sumptuous tea; after the tea champagne was brought, and Gordinski proposed toast after toast as an excuse for another glass of champagne. This was the beginning of the Russian hospitality so freely extended to us; and before I proceed further I wish to emphasise the extraordinary cordiality with which we were everywhere received. Nothing could exceed the extreme friendliness shown to us on all occasions. I do not wish for one moment to imply that this was personal to myself. It had a far deeper significance: it was due to the great satisfaction of the Army and Navy with the *Entente* which has been arrived at between Russia and Great Britain, and every officer

with whom I conversed made no secret of his wish that this *Entente* would develop into an alliance.

## VISIT TO THE BLACK SEA FLEET

On the following day, accompanied by Captain Dobrovolsky and the British Consul, we spent the morning in paying visits of ceremony to the Governor of the Crimea, the General Officer Commanding at Sevastopol and the Commandant of Artillery, by all of whom we were most cordially received and hospitably entertained. In the afternoon we called on the Admiral Commanding the Black Sea Fleet on his Flagship. He sent a steam launch to the landing stage to bring us off to his ship. On reaching the ship we were received by the Admiral and his Flag-Captain at the head of the companion ladder. The whole ship's company was mustered on deck. The guard presented arms and the officers saluted. We were shown all over the ship—men's quarters, sick bay, guns, magazines, cook house—in fact, everything. Whilst going round the Admiral remarked: "Of course, this is nothing to you; our ships cannot compare with yours, we know, but I thought perhaps you would like to see what our ships are like." After completing the round of the ship, the Admiral entertained us at tea in his state cabin, and when I was preparing to leave, the Commander came forward and said the Ward Room officers hoped we would honour them by visiting the Ward Room. I naturally accepted such a friendly invitation, and on reaching the Ward Room we found a most sumptuous repast prepared for us, with the inevitable champagne and usual toasts. Eventually we were able to get away. Again the whole ship's company was mustered on deck, and we received the same salutes as on arrival. There is a custom in the Russian Service that when a Commanding Officer has a parade, either ashore or afloat, he greets his men with a friendly "Good morning, brothers!" to which the men reply. I was told what the reply is, but I forget it; and the same ceremony is gone through on leaving. Knowing this custom in the Russian Service, I took care to observe it, and the extreme heartiness with which the men responded to my salutation showed me that they fully appreciated my action. On leaving the ship I fully expected to be taken back to the landing stage; but no, I was taken round the whole of the Black Sea Fleet, steaming round every ship, and as we passed each ship, the same ceremony was gone through as on the flagship: the crews were mustered on deck, the guard presented arms, and the officers saluted. Altogether we had a most splendid reception from the Fleet; I had never for one moment anticipated anything like it.

### VISIT TO A RUSSIAN BARRACK

On my visit to the General Officer Commanding in the morning, he asked me whether I would like to see a Russian barrack. I said, "Yes, I would"; so he said he would send carriages for us in the morning to take us to the barracks of the Bialostok Regiment, now garrisoning Sevastopol. Accordingly, on the following morning two carriages came to the hotel to take our party, consisting of myself and son, Captain Dobrovolsky and the British Consul to the Barracks. On arrival there we were received by the General and the Colonel of the Regiment, with his Adjutant. A Russian Regiment, as probably most of you are aware, is more like an English Brigade, consisting of four Battalions, the whole being commanded by a Colonel, who is equivalent to our Brigadier-General. We were first taken to the barrack rooms, where everything was well arranged, scrupulously clean—the men, the beds, the rooms, all as neat and clean as possible. We were then taken to the kitchens, where the men's dinners were being prepared; we tasted the various foods, of which there was a great variety, and which were all excellent. We then saw the field kitchen, which appeared to me to be excellent in design and, from what I hear, superior to anything in our own service; and I was glad to read in the papers one day last summer that a field kitchen on the Russian model was to be tried at Aldershot. We then visited the workshops, the stables, the stores and the schools. A Russian Regiment is complete in itself; it has its own stores, its own transport, and its own camp equipment. The interior economy appeared to me to be perfect, and I was very much impressed with all I saw. When the inspection was over the Colonel asked me if I would like to see a squad at physical drill. On my answering in the affirmative, a squad of 120 men was drawn up in the barrack square and put through the course, which they did with great precision. Their drill is somewhat different to ours, and, I should think, rather more severe as a test of physique and endurance. When this was over a photographic group was taken of ourselves, the General, all the officers of the Regiment, and as many of the men as could be got on to the plate. We then repaired to the messroom for lunch, where the whole of the officers of the four battalions were assembled. It was a most sumptuous banquet and the splendid band of the Regiment played in an adjoining room during the repast. When my health was drunk the band played the English National Anthem, and the cheers were so persistent and continuous, and the band kept on playing so long, that I thought it was never going to stop. The Colonel, who proposed the toast, referred to me as "once our enemy, now our friend." Two incidents in particular with regard to that banquet deserve to be recorded as showing the extremely

friendly feeling now pervading the Russian Army towards us. In the course of conversation my son happened to remark as a curious coincidence that the members of the Old Comrades' Association of the Royal Berkshire Regiment were holding their annual dinner in London that day. This was repeated to the Colonel, and he at once caused to be despatched the following telegram:

Secretary, Berkshires, Holborn Restaurant, London.
"Following from Colonel Bialostockski Regiment.
"Bialostockski Regiment in Sevastopol entertaining at "luncheon Major Arbuthnot; drink health of Crimean "comrades, 49th Regt."

I think this shows a true soldierly spirit of camaraderie, as the 49th and the Bialostok Regiment were, in years gone by, opposed to one another before Sevastopol. I have been unable unfortunately to obtain a copy of the reply, but I need hardly tell you that it fully reciprocated this friendly feeling.

The other incident is still more striking. In one of the sorties from Sevastopol during the siege, an officer of the Bialostok Regiment picked up an English Bible in the trenches. It has been treasured ever since as a Regimental Relic, and at the time of my visit was in possession of the grandson of the man who first found it. When he heard that I was to be entertained by the Regiment, he brought the Bible to the Colonel with a request that he would return it to me as a mark of esteem for the English Army. I think that is one of the most touching incidents I can call to mind. I shall now always treasure that Bible, not only as a mark of esteem for the Russian Army, but also as a memento of the splendid hospitality extended to me and my son by the Bialostok Regiment.

After the repast the men of the Regiment were called in and sang Russian songs, and showed us some Russian dances. We then, having spent a most enjoyable day, took our departure amidst much cheering and other manifestations of goodwill; and with this ended the ceremonial part of my visit.

## THE BATTLEFIELD OF THE ALMA

The next day, the Admiral having placed his motor at my disposal, we went out to the Alma. The main features of the ground are, of course, unaltered; but the village of Bourliouk has been rebuilt and extended, and many country villas have been built which were non-existent on the day of the battle. This made it difficult for me to locate the exact spot where my battery had been in action; but from the position of the grand redoubt I could form a good general idea of the position occupied by the English artillery. The wooden bridge by

which we crossed the river is still there. We went up to the position of the grand redoubt where the Russians had their battery of 18 guns, and standing on that hill, and looking down to the river one can realise what a magnificent feat of arms it was for that redoubt to have been captured by assault, the attacking column having to charge 400 or 500 yards up hill in face of a murderous fire. The 23rd Royal Welsh Fusiliers, to which regiment the honour of capturing that redoubt is due, lost heavily, 9 officers killed and 6 wounded, and a monument is erected on the spot to the memory of those who fell. The regiment captured a Russian gun and team complete. That gun is now in the barracks of the depot of the regiment at Wrexham, and I have here a photo of the gun.

### BALAKLAVA

The following day we drove to Balaklava, stopping on our way in to visit the house which Lord Raglan made his headquarters. There is a brass plate let into the wall of the room in which he died, with the following simple inscription:—

"In this Room died F.M. Lord Raglan, G.C.B., Commander-in-Chief of the British Army in the Crimea, on the 28th June, 1855."

On the door of the room in which he died the names of the three Generals, who successively commanded the British Army in the Crimea are cut, and in the garden there is a stone tablet with the following inscription:—

"To the memory of Field-Marshal Lord Raglan, K.C.B., Commander-in-Chief of the British Army in the Crimea, died 28th June, 1855."

What a pretty spot Balaklava Harbour is; so quiet and peaceful, so different to what it was as I knew it 56 years ago when it was crowded with shipping, and was all confusion and bustle. The wharves put up by the English to facilitate unloading are still kept up, although there can be very little use for them now. The road between the wharves and the houses of the village of Balaklava is very narrow, and the houses, if not the same as were in existence at the time of the war, are built on the same site. We returned from Balaklava to Sevastopol by the track leading up from the plain to the Col; how it recalled to my mind the many weary trudges I made up that track, bringing up forage and provisions to the battery. We had no difficulty in identifying the positions of the several Turkish redoubts captured by the Russians, nor the sites of the cavalry charges of the Heavy and Light Brigades on that memorable day, October 25th, 1854. There is a monument

put up to the memory of those who fell on that day with the following inscriptions:

*South face.*—"In memory of those who fell in the Battle of Balaklava, 25th October, 1854."

*West face.*—"Erected by the British Army, A.D. 1854."

*North face.*—Russian inscription.

*East face.*—A cross.

### THE BATTLEFIELD OF INKERMAN

The day following our visit to Balaklava was, to me, the most interesting of all, for on that day we visited the battlefield of Inkerman. Those of you who have read Kinglake's history of the war will remember that the Russians brought up four distinct columns to the attack, two of these columns being intended to turn the right flank of the English position, and drive the 2nd Division, to which my battery was attached so, I thought, in order to get a good idea of the Russian attack, I would approach the battlefield by the route followed by one of the Russian attacking columns; so we took a boat and sailed up the harbour to the Tchemaya River, and up the river as far as the bridge by which the Russian column crossed the river; from there we followed the route taken by the Russians and walked up the Quarry Ravine.

Where the track up the ravine joins the Post Road to Sevastopol a barrier of loose stones, known as the 2nd Division Picket, had been thrown up. On the 26th of October the Russians made a reconnaissance in force, evidently with the view of ascertaining our strength on our right flank, bringing some guns on to Shell Hill. It was therefore, thought desirable to throw up a breastwork of earth 700 or 800 yards further back from the barrier, and about 200 yards in front of the 2nd Division Camp, as a slight protection to the guns of the 2nd Division, which, in the event of a serious attack, were to come into action behind it, one battery on either side of the Post Road. On debouching from the Quarry Ravine we found no trace of the barrier left; being only made of loose stones, they had probably been utilised for mending the road. But walking back down the Post Road about 700 or 800 yards, there, sure enough, was the very breastwork to which I have referred, just as we left it on evacuating the Crimea, and only slightly washed down by rain. How the whole scene came back to me in a flash; there was the position of the 2nd Division camp; there was the breastwork behind which my battery was in action from half-past six in the morning till half-past two in the afternoon, firing away over 800 rounds of ammunition; there to my left front was Shell Hill where the Russian artillery was posted, from whence they pounded us the whole

day, causing us to lose 49 horses and 22 men killed and wounded—rather a hot day's work for one field battery. But the Russians ought never to have been allowed to occupy Shell Hill, the height of which is 580 feet; there is a hill to the right of the 2nd Division camp, the height of which is 646 feet. After the battle a redoubt was erected on this hill, and it was armed with 18 pounder guns. Had that redoubt been in existence on the day of the battle, its 18 pounders could have prevented the Russian artillery from ever establishing themselves on Shell Hill.

I may say here that it fell to my lot to fire the first shot at the battle of Inkerman, which came about in this way. On the morning of that day I was going on picket with two guns to our outlying picket on Shell Hill, which was strengthened by two guns in the day time. I had not proceeded far when I heard firing in the direction of Shell Hill. I could see nothing as it was a very foggy morning, and the ground was covered with thick brushwood. I hesitated for a moment whether I should go on or not, but as the sound of the firing kept getting nearer and nearer to me, I knew that our picket was being driven in; so I trotted back to the breastwork, and at once opened fire on Shell Hill, the position and the distance of which I knew exactly.

Well, after finding that the breastwork was still in existence, I thought I would try to find the remains, if any, of the Sandbag battery, so I walked off in the direction in which I knew it ought to be, and again I was gratified to find it still in existence. This battery was erected to silence two Russian guns, which had been placed in position on the Inkerman heights on the opposite side of the Tchemaya Valley to prevent our foraging parties from carrying off meadow hay, which was stacked in the valley below the 2nd Division camp. The battery was armed with two 18 pounders, and it fell to my lot to have to work them. I had very little difficulty in silencing the Russian guns, but I noticed that after firing their gun the gunners ran down a path in the rock, and took shelter in a building cut out in the face of the rock. I thought I ought to have them out of that building, so I laid a gun on the door through which they entered it. To my astonishment the very first shot went bang through the door—a marvellous shot for a smooth-bore 18 pounder, at a range of 1,700 yards. Out ran the gunners, followed by a priest. I then found that quite unwittingly I had fired into a church; but it was not I who desecrated the building, but the able-bodied fighting men, who had no business to use a church as an asylum of refuge. But now for the sequel. I naturally went over to see this little church on my recent visit, and there to my astonishment and delight are the very two round shot, which I fired into the building, placed on two

pillars at the entrance to the chancel. They have been blessed as having been fired into a sacred edifice without doing it any harm. I was pleased to see them there, as I like a story of this sort to be confirmed, otherwise one might be accused of telling travellers' tales.

After photographing the Sandbag Battery, we retraced our steps to the breastwork, and walked down a road laid out straight from the breastwork to Shell Hill, in preparation for the Jubilee to which I have referred. On Shell Hill the Russians have erected a monument to the memory of those who fell at Inkerman, and the English monument is close by with the following inscription.

*South face.*—"In memory of the English, French, and Russians who fell in the battle of Inkerman, 5th Novr., 1854."

*North face.*—Russian inscription.

*East face.*—A cross.

*West face.*—"Erected by the British Army, A.D. 1856."

We also walked over the ground occupied by the 2nd and Light Divisions and the Guards' Brigade, which were all close together, and it was perfectly easy to trace where the lines of tents had been, as the stone paths between them which the men had made are still perfectly visible. After this we returned to Sevastopol, having spent a most thoroughly interesting day.

### THE SIEGE WORKS

Having completed my inspection of the battlefields, I next turned my attention to the siege works and approaches, commencing with the French attack on the Mamelon and Malakoff. The parallels and zig-zags for the attack on the Mamelon, as well as the sites of the breaching Batteries, and also the approaches from the Mamelon to the Malakoff, are all quite distinct, and it is easy to follow the line of the French attack. It is surprising to see how very near the French had crept up to the Malakoff before the final assault; the distance they had to cover in the open certainly not exceeding 40 yards at the very outside. A monument to the memory of the Russians and French who fell on September 7th, 1855, is erected just outside the Tower, and from there you can get a very good view of the town and harbour of Sevastopol.

Leaving the Malakoff, we went back to the English Right attack, and worked our way right along to the Left attack. We were able to locate the position of Gordon's 21-gun Battery, as well as Chapman's Battery. The parallels and approaches are also quite distinct, and the parallel connecting the English Right and Left attacks is as plain as if it had only been made a year or two ago. We walked right along it, going down one

side of the ravine and up the other side to Chapman's Battery. But it was more difficult to find the sites of the more advanced Batteries, as a great deal of quarrying has been, and is still, going on, so that in many cases the sites of the breaching Batteries are entirely obliterated. The nearest parallel to the Redan, from which the final rush for the assault was made, is quite 200 yards from that work and uphill all the way; and now, after a lapse of over 50 years, looking at the work from the English side, and having also seen it from the Russian side, one can easily realise why it was the English were unable to hold it after having gained a footing in it. The English have erected a monument in the Redan to the memory of those who fell in the assault.

It was difficult to locate the exact position of the siege train park or of the windmill which was used as a magazine, and which blew up on November 15th, 1855. The ground about there is not so rocky as on other parts of the upland, so it is more cultivated. But the sites of the camps of the 3rd and 4th Divisions are even more distinguishable than those of the 2nd and Light Divisions and Guards' Brigade, the reason probably being that the 2nd and Light Divisions and the Guards bore the brunt of the fighting at the Alma and Inkerman, and suffered far more severely than the 3rd and 4th Divisions, and therefore had not so many men available for making roads, etc., in the camps.

### THE CEMETERIES

A few words now with regard to the cemeteries in the Crimea and at Scutari. When the Board of Works heard that I was about to visit the Crimea, I was requested to inspect the cemeteries and to report as to their condition, and to make such recommendations with regard to them as might occur to me. It was a source of great satisfaction to me to be able to make a most favourable report as to their condition. The cemetery on Cathcart's Hill is very pretty, and is beautifully kept under very difficult circumstances on account of the want of water, without a good supply of which the plants cannot be kept alive. Every drop of water now has to be brought up in a water barrow from a stream of water running through a ravine below the cemetery, thus entailing a great expenditure of time, labour and money; whereas for an expenditure of about £300 water could be laid on by means of a force pump. This would be a saving in the end, as the services of a man could be dispensed with. I have urged this strongly on the Board of Works, but whether my recommendation will be attended to or not I do not know. Most of the monuments in the cemetery are in good preservation, but others are decaying and require renovation.

The cemetery at Scutari is very prettily situated, overlooking the Bosphorus, and it also is very beautifully kept. A handsome monument has been erected in the centre of the cemetery, and the following inscription has been engraved on the four sides of the base in the languages of the four Allied Powers engaged in the war—England, France, Turkey and Sardinia:—

TO THE MEMORY
OF THE
OFFICERS AND MEN
AND OF THE SAILORS
OF THE ENGLISH ARMY AND FLEET
WHO DIED FOR THEIR COUNTRY
IN THE WAR AGAINST RUSSIA
1854—1855—1856
THIS MONUMENT WAS ERECTED
BY
QUEEN VICTORIA
AND HER PEOPLE
1857

The English inscription, being on the side most exposed to the weather, is almost illegible, and I could only gather what the inscription was by reading it in French. I have urged the necessity of renovating this inscription on the Board of Works, but with what result I know not.

With regard to the town of Sevastopol itself I have not much to say. It is a well-built town, with good streets and good shops, well kept, very clean and orderly, with a good public garden, and embellished with statues of the leading Generals and Admirals engaged in the war. I was shown the spot where the Bridge of Boats, by which the garrison retreated on the night of September 7th, 1855, was thrown across the harbour to the North side. The Karabelnaia suburb, which suffered most during the bombardment, has been entirely rebuilt, and now shows no signs of the way in which it was knocked about in 1854-1855. New docks also have been built on the site of the old docks, which were blown up early in 1855.

And I have now only to say in conclusion that the visit I paid to the Crimea last April was the most interesting trip I ever made in my life; and I can never forget as long as I live

the great kindness shown to me and my son on all sides, and the extreme cordiality and hospitality extended to us.

## DISCUSSION.

MAJOR-GENERAL A. K. RIDEOUT, C.B., late R.A. :—General Owen and I went out to the Crimea in '54, but General Arbuthnot embarked for the Crimea a month before I did, at Woolwich. I remember perfectly seeing him off at the dockyard. I have been most interested in hearing the state of the old country that we fought over, and of the glorious and hospitable reception he met with from those gallant friends of ours of the Russian Army. Personally I received great kindness from the Russians after the peace. I was most hospitably entertained by them both at Simpheropol and Baktchiserai by a great friend of mine in the Russian cavalry, Captain Dombrowski; and also by Captain Vallaeff. I want to ask my old friend, General Arbuthnot, if he saw anything of an old building that I lived in for some weeks and months, the old monastery of St. George, where we had a convalescent hospital after a time, and where we had as prisoners of war the family of Captain Stomati. He was the Commandant at Balaklava and when we marched round, he wanted to show fight, but it was impossible against the allied forces, so he surrendered. The family of "Stomati" were taken care of by the British, and were accommodated in a house in the monastery of St. George, half way between Cape Kheronese and Balaklava.

MAJOR-GENERAL C. H. OWEN, late R.A. :—We have all listened with the greatest interest to the description the lecturer has given of the Crimea, especially those of us who were there at the time. There is one thing that must have struck us all in the lecturer's dealings with the Russians, and that is not only the immense hospitality and respect which has been shown to General Arbuthnot, but the tremendous pride that the Russians took in their magnificent defence. I should like to ask: Where is the pride of the British public, or even of the British soldier, in the grand deeds that we did in the Crimea? Nothing was supposed to be worth looking at a few years ago, except the great Franco-German War of 1870; but I think those present will agree with me that there is far less to be learned from the war of 1870, as far as we British soldiers are concerned, than there is from the war in the Crimea. We are not going abroad with seven or eight army corps to fight in the Plains of Europe, but there is every probability that we may take part in a combined naval and military expedition not so very far off, perhaps in Belgium, say, and therefore it is a great pity, I think—of course I may be wrong—that the Crimea War as a campaign, and all the difficulties that we overcame there, and the deeds that we did, do not receive more attention.

### NEGLECT OF THE ARMY BEFORE THE CRIMEAN WAR

Long before the Crimean War, the army had been reduced to a mere skeleton. In 1851 we had the great Exhibition, and after that we were all to live in peace in a sort of commercial heaven. There was to be no more war at all. What was the consequence? When the army was sent out to the Crimea, I venture to say that no finer body of 25,000

men had ever left this country as soldiers. They were splendid men, well disciplined, fine-hearted, and strong; and they were well armed, considerably better armed than any of the other nations employed. When our force arrived out there, it was not an army, for there was no commissariat, no transport, no hospital corps, and, what was more important still, no reserves. All those had to be made during the war at enormous expense. Mr. Gladstone supposed that he was going to pay for the cost of the war out of the revenue of the year, but as a matter of fact it cost eighty millions.

### THE SIEGE OPERATIONS

I do not want to take up too much of your time to-day, so I shall not touch on the battles that were fought. What I want to impress upon you is this, that the general idea of the public in England is, that the Crimean War consisted of four battles, in three of which the Allies defeated the Russians; but that all the rest of the campaign was tedious ill-managed siege work. Lord Wolseley in his "Story of a Soldier's Life" says, "Never was any great siege more stupidly planned; we floundered along upon archaic principles." I think that is very hard upon our army in the Crimea. I was very much surprised to see in a report of what was said by General Sir Robert Biddulph, when another paper on this subject was read at Woolwich, that he made the statement: "It is perfectly true the guns were exactly the same as had been used in the Peninsula." Why, in the Peninsula they used 18 pounders and 24 pounders as siege guns.

MAJOR-GENERAL ARBUTHNOT:—The guns I had in my battery at the Crimea were actually used at Waterloo.

MAJOR-GENERAL OWEN:—The 6 pr. of the Horse Artillery was a toy gun. I am confining my remarks now to what is after all the main feature of the campaign, namely, the siege operations. Well, as far as the siege guns were concerned, instead of 18 pounders and 24 pounders we had 24 pounders and 32 pounders, and some quite new 8-inch shell guns; and we got from the navy some 10-inch guns and 68 pounder guns. We had 10-inch mortars, and we got some 13-inch mortars from Malta.* The French siege guns were 24 pounders and 16 pounders—very small—but they got some heavy guns from their fleet, and they had some 8¼-inch howitzers, and 8¼ and 10¾-inch mortars. Their field gun was a 12 pounder shell gun. The Russian guns and mortars were very heavy pieces, because they had the fleet and arsenal behind them; and the Russian field guns and howitzers considerably exceeded ours in weight of metal. At Inkerman those pieces overpowered our troops and batteries, until the arrival of our position guns, which the lecturer has mentioned.

Then I may call your attention to the fact that Lord Wolseley has said in his "Life," speaking of the officers of the Royal Engineers, "Few knew much of the world, and by their training at Woolwich and Chatham they were small minded. All would have gone better had they never read Jones's 'Sieges in Spain', reverenced as the sappers 'Book of the Law.'" In the first bombardment the batteries constructed were no disgrace to our engineers. The French batteries, which were much

* The British had also some six 8-pr. guns rifled on the Lancaster system. C.H.O.

lighter, were put on flat ground, and they were all placed together. Therefore the fire instead of being converging, as it ought to be, was diverging, and the Russians converged their fire on them. Not only that, Todleben put out a battery near the Quarantine Ravine, which enfiladed the French batteries. The English batteries were very skilfully placed on two separate hills. Colonel Todleben, one of the greatest engineers of the century, said that the French batteries were inferior to the English batteries in their weight of metal, disposition, and sites chosen; that their fire diverged on the Russians, while that of the latter concentrated on them. It was otherwise, said Todleben, with regard to the English batteries: "The advantages offered by the ground were seized, so that while firing directly on one face of a work they could at the same time enfilade and take in reverse an adjacent face." When we come to the first bombardment, what happened? It was commenced about half past six in the morning, and by half past ten the French were completely shut up. Todleben's counter battery blew up the magazine; and they did not open fire for three days afterwards. Then the whole of the fire was diverted to our batteries. Our batteries on that day did some most wonderful work. They reduced the Redan and the Malakoff to ruins. Out of 22 guns on the Redan only two remained, and Todleben gave a most touching account of the condition of these works. There is little doubt that the Redan might have been attacked that night before any repairs had been made, but that was impracticable for various reasons. The French, having failed, would not join with us, and we had not enough troops of our own.

MAJOR-GENERAL RIDEOUT:—The French magazines blew up at 8 o'clock in the morning.

MAJOR-GENERAL OWEN:—I said their fire was shut up at half past 10—that they did not fire a shot after half past ten, and I think I am right.

I should like you to realise what the Siege Train had to do while we were in the Crimea. We only had two reliefs of eight hours during the day, and, as it took an hour to go to, and an hour to come back from, the battery, we only had six hours in which to eat, drink and sleep, and if anybody has tried that sort of life for ten days they will know what hard work is, especially on the food that we had. We simply had salt beef and biscuit, and rum and water. Throughout that winter we suffered tremendous privations. We had to do a lot of heavy work, such as mounting guns, and conveying ammunition, etc. The snow was on the ground for two months. You have all read over and over again of the hardships we had to bear because all the winter clothing went down in the *Prince*.

### THE GENIUS OF TODLEBEN

What I should like to point out, although the lecturer says it has nothing to do with his paper, is that we had there a great opponent, who was the greatest genius as an engineer of the last century, namely, Colonel Todleben. In the spring, Todleben developed quite a new system of siege tactics. He made pits, extended them to trenches, and then made works. He made an advance on the besiegers of 400 yards. First of all he constructed the two White Works, which appeared quite unexpectedly on the 23rd February. Then on the 10th of March he seized the Mamelon while the French were thinking about it, and made a formidable work, and he also converted the quarries under the Redan into a

work. Those all had to be retaken afterwards, and it entailed several months of hard work to drive him back into the main works again.

THE EFFECT OF THE BRITISH ARTILLERY FIRE

I will only refer to another subject, and that is, the tremendous effect of our fire upon the Russians. It is the fashion in these days to say that the chief effect of artillery is its moral effect. As a matter of fact, after the fourth bombardment, a Russian officer said to a British officer during a truce, "Our losses are from 1,000 to 1,500 a day. You should see our batteries; the dead lie in heaps and heaps. Troops cannot live under such a fire of hell as you poured upon us." After the fifth bombardment, a Russian officer remarked that the state of the Russians was terrible; the parapets were in huge fragments; the interiors in holes from shells so that no gabions or sand bags could be erected, and guns could not be replaced under such deadly fire. The defenders were in caves under the parapets, and the gunners who were lying dead, and could not be removed under fire. The daily losses were from 800 to 900. It was this deadly fire which enabled the French to take the Malakoff. We found out that, owing to there being such a tremendous fire, the Russians only relieved their troops in the middle of the day, and they did not bring in the relief until those that were in the Malakoff had gone out.

THE ASSAULT ON THE MALAKOFF

The French had only 25 yards to go to reach this work. They poured men into the works; they sent thousands to fill them up, and the work being enclosed, they could not be dislodged; and our battery in the quarries did immense service by preventing the Russians coming to the relief and attempting the re-taking of the Malakoff.

THE CHAIRMAN:—Had we not on our side, so far as the construction of the trenches is concerned, to which you drew attention just now, two of the finest officers of the Royal Engineers who had previously gained their experience in the Peninsula, that is Sir John Burgoyne and Sir Harry Jones?

MAJOR-GENERAL OWEN:—Yes, that is so. We had Sir John Burgoyne, and afterwards Sir Harry Jones relieved him, but the latter was hardly on a level with Todleben. We had also many good engineer officers of lower rank.

THE CHAIRMAN:—I only said that because your previous remarks rather intimated that we suffered from not having engineer officers of sufficient experience there.

MAJOR-GENERAL OWEN:—Oh no: Lord Wolseley said that. We had also some General officers of reputation and experience in warfare, such as Sir de Lacy Evans, Sir G. Cathcart, &c., and among Brigadiers, Sir Colin Campbell. The French had two Generals whom I have very great pleasure in mentioning, because they were active, resolute and capable soldiers, namely, Pélissier and Bosquet. Pélissier quite changed the face of things. General Canrobert had been so much hampered by orders from the Emperor of the French, conveyed through General Niel, who had been sent out as adviser, that he resigned the command of the French army; and Pélissier was appointed to succeed him. The latter paid no

attention to the advice of General Niel, but determined on a regular and systematic plan of advance on the Malakoff from the right (the main French attack had before been on the left), which, with the co-operation of our right attack, succeeded in capturing the Russian outworks, and eventually in taking the Malakoff by assault, causing the fall of the place.

Before sitting down I should like to make a few remarks about the difficulties of the siege. You must remember that during this siege we were thousands of miles from our base, and then we experienced considerable difficulty owing to the divided French and English command. Then there was another very important thing which had its bearing on the campaign, and that was the interference of the French Emperor. Another great difficulty was the hard ground we had to work over; and then we had such few troops, and no transport, except the teams of the horse and field artillery, until the rail road was made. The greatest difficulty of all was, that Sevastopol was not invested. The enemy had an arsenal and dockyard at their disposal, and they could replace every gun we dismounted, and supply themselves with ammunition and stores of all kinds. The Russians had every reason to be proud of such a prolonged and terribly disastrous defence, and the Allies had as much cause for pride, in capturing the place after such a stout resistance.

CAPTAIN E. C. RASON, R.N. :—I should like to say that I spent five months in Russia learning the language, and during that time I saw the whole of the Crimea; I should like to be allowed to refer in the few remarks I have to make to the reception which the lecturer received from the Russians during his visit to the Crimea.

### RUSSIAN FRIENDSHIP FOR ENGLAND

There seems to be some idea prevalent that he received it for his own sake, and that the *entente cordiale* or friendship for the Russians has only been recently begun. I can assure you, however, that I have known Russia for 25 years, and have travelled all over it. I have lived in a Russian family; I have gone into Russian society. I was always treated absolutely as a friend and a comrade. I was at Sevastopol just at the time when there was so much trouble about Fashoda, and war appeared likely between England, and France assisted by Russia. I was very doubtful whether I ought to go to Moscow, and I told my friends so. I went back to my hotel, and found that a very distinguished Russian officer had called upon me. I waited for him, and when he came he said "I have come to see you, because I have heard that you are afraid to go to Moscow because there is some difficulty between England and Russia. I assure you there is no difficulty, and that you can go to Moscow or anywhere else you like." When he shook hands with me he put his hand on my shoulder and "I can tell you one thing: we, the Russians, will never go to war with England."

This friendship of Russia which General Arbuthnot has told us about, and of which he received such a striking example in the Crimea, is not a new friendship at all. It is a friendship that has existed for hundreds of years before the Crimean war. I have been from the north to the south and from the east to the west of Russia, and wherever I have gone I have always been treated—although they knew I was an Englishman—as a Russian would treat a brother. I remember saying once to a Russian lady "You are always most hospitable and friendly to English people," and she said "Yes, you carry your passport with you. We are always

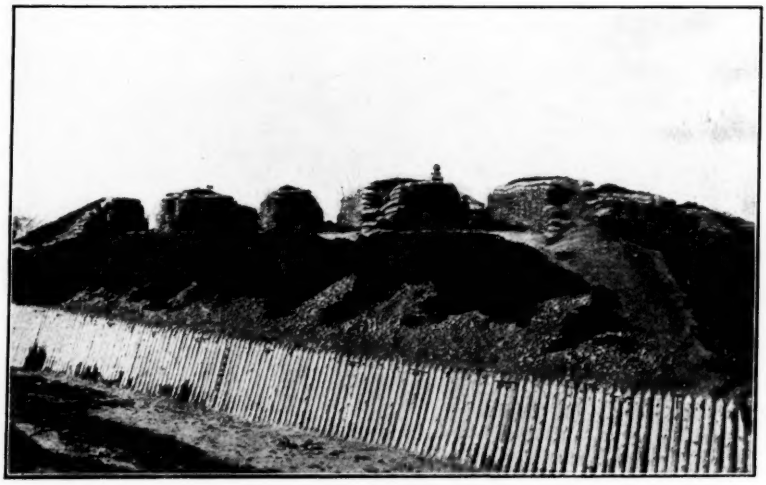
very glad to meet an English gentleman, and we are more especially glad to meet him when he shows his sympathy with Russia by knowing our language." I have done all I could for the last 25 years to get a better feeling created in England towards Russia, and I therefore feel I owe my personal gratitude to the lecturer for having brought to the notice of the English people, through the medium of this lecture, the sentiment which exists in Russia in favour of England.

THE CHAIRMAN, LORD W. F. G. SEYMOUR:—After what we have heard I do not think there will be any difficulty in my asking you to pass a cordial vote of thanks to General Arbuthnot for the lecture he has given us to-day, and also to the gentlemen who followed him, and who have explained certain points that I will not say were left out by him, because he left out nothing, but for slightly amplifying the lecture. We have had very great pleasure in listening to those artillery officers who took such a mighty share in the siege of Sevastopol. I heartily agree with General Owen in thinking that the Crimean campaign was not confined to those three battles that have been mentioned. All those who served in the trenches—unfortunately I was not one of them—know well enough that—whether they were artillerymen working batteries or whether they were infantrymen in the trenches—the work there was as severe, as dangerous, and as glorious as in the three battles that had previously been fought.

I was so very glad to hear, both from the lecturer and from Captain Rason, of the good feeling that has since been brought about between the two nations. I was in Russia twelve years ago, and nothing could exceed the kindness with which we were all treated. I will not say anything about myself personally, but anyone going, as we did, to see their army could not but be struck with the interest they took in individual regiments of our service, and also in our particular ships. I found that the present Emperor took a most vivid interest in a reconnaissance that was made by Her Majesty's ship *Driver*, which came right up almost to the gates of Kronstadt. The Emperor said "How could that be done now?" for which I do not think I had a ready answer, considering that the batteries that have been built since that time are ten times as strong as they were in the days of the *Driver* under Captain Cochrane. One of the Grand Dukes said to me "What regiment were you in?" On my naming it he said that was the regiment that lost so many officers at Inkerman, where he, the Grand Duke Nicholas, had obtained his baptism of fire. Then they asked some questions of two fine old veterans who had served in the brigades there, who have been given excellent appointments in the Royal palaces. There is no Chelsea Hospital at St. Petersburg, but in the Royal palaces, both at St. Petersburg and Moscow, the Emperor told me there are certain places which are always filled, if possible, by men who served during the defence of Sevastopol, showing that they look after their old soldiers, just in the same way that these men here from Chelsea Hospital this afternoon have always been looked after by the Sovereigns ever since those days in England. It now gives me the greatest possible pleasure to ask you to record a vote of thanks to General Arbuthnot for the very valuable and interesting lecture he has given this afternoon, which has raised such an interesting discussion. I am afraid, as General Owen hinted, that some of us may be too old to go out to the Crimea again, but I always regret not having re-visited it. I had a chance to go with my eldest brother when he went out there; he

told me that he has experienced the same warm hospitable reception from the Russians that General Arbuthnot received on the present occasion.

MAJOR-GENERAL H. T. ARBUTHNOT, in reply, said: I beg to thank you very heartily for the cordial vote of thanks you have just passed. I purposely left out of my lecture all reference to the war itself, because I knew it would make the lecture a great deal too long. I am sorry I did not have time to visit the monastery of St. George, nor the French lines down as far as Kamiesch, nor could I go into the interior to Simpheropol and Baktcheray. I hope to visit them on a future occasion, because I have been invited to go to the Diamond Jubilee in 1914, when I hope Lord William will come with me. He says he is too old; but he really is not, and I hope he will come.



FLAG STAFF BATTERY, SEVASTOPOL.
Restored 1904.

INTERIOR FLAG STAFF BATTERY, SEVASTOPOL.
Restored 1904.

# THE TACTICAL EMPLOYMENT OF TORPEDO BOATS.

*By L. VANNUTELLI, Capitano di corvetta.*

Translated from the *Rivista Maritima* by Commander R. H. KEATE, R.N., and published by permission.

## DEFINITIONS OF ABBREVIATED TERMS USED.

Lines between points are sometimes called by the double name, such as Ship-Boat line, Observer-Target line, etc.

Angles are represented by the double name of the vessels, and indicate the angle between the course of the first vessel and the bearing of the second; thus, Ship-Boat angle=angle between Ship-course and Ship-Boat line, whereas Boat-Ship angle =angle between Boat-course and Boat-Ship line. Similarly the terms Torpedo-Ship angle, Torpedo-Buoy angle are used. Bow, Beam and Stern angles=angles from right ahead abeam and astern respectively. Profile-angle is the angle between Target course and Target-Observer line. Impact angle=angle between the Ship and Torpedo courses at the moment of striking.

The instant of time is shown by a present participle, thus: Torpedoing profile-angle =angle between Target course and Target-Boat line at the moment of firing the torpedo. Courses angle=angle between the courses of two vessels.

## TACTICS OF TORPEDO CRAFT

The History of Naval War offers no typical examples of the action of groups of Torpedo craft against ships under way, from which principles can be deduced; it is probably due to this fact that there is so much difference of opinion about this important matter. Such questions should without doubt be studied experimentally rather than by purely theoretical analysis: nevertheless, as there is no defence made by the ships attacked in peace exercises, they have but a relative value, and some of them carried out on special hypotheses are perhaps more likely to evolve wrong principles than right ones.

The boats, secure from all imminent danger in peace time and undisturbed in their manœuvres, can follow a previously laid down course of action with exactitude, and the defending ships scarcely trouble to manœuvre to ward off the attack. But we should always suppose that the ships are not passive, but will act in the most efficient manner for their own safety; though

they will sometimes be caught at a disadvantage of which the boats must avail themselves to the uttermost.

Consequently, tactics should not be rigid or consist of too restrictive formations, but should be susceptible of adaptation to the special circumstances of the case.

Chance conditions of the moment may decide the initial moves; for instance, fog, moon, sea, hydrographical conditions, conditions of visibility, position of boats, illuminated zones, sighting of several objects at once in different directions; all these may influence the course of action adopted and the results achieved.

It is a fatal mistake to miss a good opportunity of torpedoing an enemy's ship simply to preserve a geometrical flotilla formation.

A group of torpedo boats should manœuvre with a maximum of co-operation and confidence and on general principles rather than under fixed rules, so as to take advantage of weak points of searchlight systems and faulty defensive manœuvres, and the other momentary circumstances.

Certain evolutions performed in peace time are simply conventional, and of very doubtful tactical utility. The want of synthetic application to exercises of the general principles of tactics has often resulted in the triumph of tactical systems at variance with these principles.

### TORPEDO ATTACKS

It is now universally admitted that torpedo boats cannot attack by day, but must leave the hours of daylight entirely to the submarines. Increase in size of torpedo boats has augmented their speed, seaworthiness, and armament; there are fewer boats, but each one has more tubes; the number of torpedoes, then, capable of being fired from a point, being greater than before, and the value of each boat being greater, authorises more dispersion of the units of attack. (I refer to sea-going boats with 3 tubes, 2 forward and 1 aft).

I propose a greater dispersion of the boats of a group with a view to the concentration of their effect. It does not appear impossible that the group shall be so dispersed that the probabilities of being hit and put out of action, and also of being sighted simultaneously are a minimum, but that the torpedo firing shall be simultaneous or nearly so, thus obtaining the maximum effect required.

Torpedo boats are fragile weapons, and must get close to their prey without any preliminary offensive action. Thus, surprise is the most important point; hence, the attack should be made by night, with several units at once, but in extended order and at high speed.

Only the rapidity and impetuosity of the attack and the protection of darkness can give a good chance of closing on the

ships before discovery. Dispersion in the same sector of the battleship's defence increases the number of targets fired at and the chances of immunity for the boats, even to the extent of some boat closing sufficiently without being seen. When a torpedo boat is sighted from a ship there is a tendency to concentrate attention on her, so that the other boats have more chance to avoid the lit-up zone. But the number of units that can attack at once is limited by the necessary dispersion and by the restricted area available for torpedoing. One must not hesitate to sacrifice one's own boat to ensure the success of the group. Consequently the first boats will often be sacrificed, and their function will have been to make the enemy reveal herself to the other boats by means of her own projectors and gun-flashes, or to enable these to approach unseen while the first boats attract the gun fire.

The tactics of torpedo boat attacks are not only those of surprise, but of initiation, so that formations of regular and concise character are required for conducting the groups to the points of dispersion.

To recapitulate, the fundamental principles of the attack are:—

1. Simultaneous attacks by a number of boats, this number allowing of the necessary dispersion.
2. Attacks so conducted as to bring the individual boats to the firing points without interfering with each other's movements.
3. Attacks so conducted as to render convenient the relative positions of the boats if the surprise fails or if the ship manœuvres to parry the attack.
4. Attacks conducted on general principles but not under rigid rules.

### THE PROBLEM OF FORMATIONS

Formations, as already stated, are only needed to bring the groups to the starting place of attack; they should therefore correspond to the requirements of scouting and approach, and at the same time permit of applying the principles of attack above enumerated.

A formation should possess:—

1. Elasticity, to allow the boats liberty of movement and some facility for altering course.
2. Simplicity, so as not to require too much attention to preserve the order.
3. Safety, so as to reduce the chances of collision in case of changes of speed or casualties to engines.

In studying the problem of formations the following considerations present themselves:—

1. Too close formations make large targets and are more easily discovered, especially with regard to the large clouds of smoke they emit.
2. In close order or on the same bearing from the enemy directly one boat is discovered, the remainder are also detected.
3. Formations of too great length immobilise the boats in the rear, prevent them from seeing what is happening ahead and hinder the transmission of orders and information; the intervals between the torpedoes of the successive boats are too great.
4. In single line ahead, intermediate boats are liable to disturb the manœuvres of the next ahead or astern, causing extension of the line; at high speed a dangerous proximity between units is frequent.
5. Formations should enable boats to imitate the manœuvres of their Group Leader without signal, and to approach with facility for the purpose of giving information and orders.
6. Formations should allow all units to sight the object of attack at once, and then to place themselves with facility as required to avoid covering each other's line of attack, so that each one can keep the enemy in sight during the approach, follow his movements and estimate his speed and course.
7. Formations should be such as to prevent the smoke of the boats enveloping their companions, a condition which generally arises in single line ahead.
8. Formations are advantageous in which boats can see each other without lights, *i.e.*, when they can see the whole length and not only the beam of the others.
9. Formations should lend themselves to easy grouping in case of meeting destroyers, and allow of suitable manœuvring if the attack is discovered and the ship alters course in time to parry the attack.

Though I consider that the formation can often be altered during the approach if there is a supporting cruiser, still it will often happen that contact with the enemy will be made too late to alter the formation; the latter should be suited for scouting purposes as well as attack, so that in the worst case at least a few units can attack in their present order. The problem of formations is intimately bound up with the number of boats forming the groups and flotillas, a number which is limited by the requirements above enumerated, especially by those of flexibility, facility of manœuvre, easy transmission of orders, necessity of dividing into two groups to enable the enemy to

be surrounded in certain cases, and the probabilities of destruction by gun fire; it should not be greater than will allow of a suitably extended order and of all units of a group arriving nearly simultaneously at the firing position.

It is true that by increasing the number of boats the chances also increase of at least one boat getting close enough to fire, but if there are too many boats their conduct becomes difficult, and the result is confusion and premature discovery, increasing the chances of the guns in greater proportion than those of the torpedoes.

### PROBABILITY OF DESTRUCTION BY GUN FIRE

Let us now consider the probability of a boat being destroyed by the ship's guns with a view to deciding the best number of boats in a group.

It must be borne in mind that a ship will not always be able to open fire at 1,500 metres immediately, and that successful torpedoes are sometimes fired at above 500 metres, and at angles of impact above 90°.

We will take the period of useful fire to be a minute.

Practical rate of firing at night of guns capable of destroying a torpedo-boat with one hit, six shots a minute.

Probability of each shot hitting 1/10, in other words, probable number of hits = 10 per cent. of shots fired.

The number of shots that a ship can fire against each boat being limited, and a single hit being enough to put the boat out of action, what is the chance that any particular boat will be hit?

In this special case the number of hits is a minimum, *i.e.*, one, consequently we cannot consider the chance of the boat being hit as number of shots multiplied by chance of each shot hitting; for this product is only true for an infinite number of shots. We will therefore subject the problem to a more rigorous examination, *i.e.*, to the theory of repeated events.

If the chance of hitting is 1/10, the chance of missing is 9/10 for each shot.

Therefore $(9/10)^n$ is chance of missing in n shots, *i.e.*, the non-hitting event recurs n times.

Thus at first shot the chance of missing is 9/10
at second ,, ,, ,, $9/10 \times 9/10$
at third ,, ,, ,, $9/10 \times 9/10 \times 9/10$
In n shots ,, ,, hitting $(1-(9/10)^n)$

If P is chance of hitting in n shots, to make practically certain of hitting P must be put nearly = 1 or say 9/10.

Thus $P = 9/10 = 1-(9/10)$ or $n \log 9/10 = \log 1/10$
$n = \log 1/10 \log 9/10 \therefore n = 21$.

So to have odds of 9 to 1 on hitting requires 21 shots. But in the one minute of exposure to fire, each gun fires 6 shots.

Therefore at least 4 guns must oppose each boat if the boats are on different bearings.

In present battleships each quadrant can be swept by 10 guns at most, so the number of attacking boats in the quadrant should be at least 3 to give a chance of some boat penetrating through the fire of the 3 guns opposed to her.

Supposing two guns can be aimed at each boat in the same sector (of 60° on an average), then the chance of hitting each boat is $1-(1-0{\cdot}1)^{14}=1-0{\cdot}2=0{\cdot}8$, or it is 4 to 1 against any boat getting within 600 metres.

The want of practical results obtained from exhaustive experiments has induced me to examine the above theory of probabilities to get a slight idea of the effects of gun-fire against torpedo boats in a night action, and remove some of the vagueness attaching to the question.

Let us take two cases:—

1st. When the target is not illuminated by searchlights.

2nd. When the target is illuminated and the firing can be adjusted, however difficult this may be in practice.

In both cases:—

Let opening range = 1,500 metres.

Firing rate = 6 shots a minute or 1 in 10 seconds.

Boat-Ship closing rate = 15 m a second = 30 knots.

Mean Boat-Ship angle = 30°

Length of boat vitals = 20 m = Target length = 20 s in 30° = 10 m.

Target height = 2 m.

Vertical target error (due to sight error) = 0·9 m per 100 m sight.

Vertical target error (due to aiming error) = 2 m at 600 m and then increasing 1 m (2/10° elevation) per 150 m range increase.

Lateral target error (due to error in aiming) = 10 m at 600 m and then increasing 5 m per 150 m range increase.

| Distance. | Vertical Target (Fixed Sight) error. | Mean Vertical Target (Aiming) error. | Mean Lateral (Aiming) error. |
|---|---|---|---|
| 1500 | 3 m. short | 8 m. | 40 m. |
| 1350 | 2·1 ,, | 7 | 35 |
| 1200 | 1·2 ,, | 6 | 30 |
| 1050 | 0·3 ,, | 5 | 25 |
| 900 | 0·6 over | 4 | 20 |
| 750 | 1·5 ,, | 3 | 15 |
| 600 | 2·4 ,, | 2 | 10 |

We must remember that the target attracting the gun-layer's eye is always above and to one side of the vitals of the boat;

only 10 seconds are allowed to fire each shot; the target is very difficult to see and moving very rapidly; the variations in illumination have a deterrent effect on the shooting; often the gunports limit the view. Let us determine what is the probable number of hits in the two cases of dark and light target between 1,500 and 600 metres, the latter distance giving a mean torpedo-range of 500 metres.

Let P x/d=probability of hitting a target of size 2x with a mean error d; *i.e.*, the proportion of the number of shots with an error less than x to the total number of shots. Then, using Professor Alger's "Tables and Formulæ in Exterior Ballistics," which give the values of P for the various values of x/d.

For the dark target when a fixed 1,000 metre sight is used for the entire 7 salvos of n shots.

We have for the first salvo:—

$$P = 1/2 \left(P\frac{3 \times 1}{8} - P\frac{3-1}{8}\right) P_{5/40}.$$

Or

Probability of hitting target=1/2 (Probability when x=3+1 and d=8 minus Probability when x=3−1 and d=8) X (Probability when x=5 and d=40).

$$P = \frac{0.310 - 0.157}{2} \times 0.076 = \frac{0.153 \times 0.076}{2} = 0.005814$$

Therefore:—

Probable number of hits in the 1st salvo of n shots is

$$N = n \text{ X } 0.005814.$$

For the second salvo at 1,350 m

$$P = \tfrac{1}{2} \left\{ P\frac{2.1 + 1}{7} - P\frac{2.1 - 1}{7} \right\} P\frac{5}{35} = \frac{0.274 - 0.094}{2} \times 0.088$$

$$= \frac{0.18 \times 0.088}{2} = 0.00792 \quad N = n \text{ X } 0.00792.$$

For the third salvo at 1,200 m

$$P = \frac{1}{2} \left\{ P\frac{1.2 \ 1}{6} - P\frac{1.2-1}{6} \right\} P\frac{5}{30} = \frac{0.225 - 0.019}{2} \times 0.1$$

$$= \frac{0.206 \times 0.1}{2} = 0.0103 \quad \therefore N = n \text{ X } 0.0103.$$

For the fourth salvo at 1,050 m

$$P = \frac{1}{2}\left\{P\frac{0{\cdot}3+1}{5} - P\frac{0{\cdot}3-1}{5}\right\} P\frac{5}{25} = \frac{0{\cdot}163+0{\cdot}088}{2} \times 0{\cdot}12$$

$$= \frac{0{\cdot}251 \times 0{\cdot}127}{2} = 0{\cdot}015938. \quad \therefore N = n \times 0{\cdot}015938.$$

For the fifth salvo at 900 m

$$P = \frac{1}{2}\left\{P\frac{0{\cdot}6+1}{4} - P\frac{0{\cdot}6-1}{4}\right\} P\frac{5}{20} = \frac{0{\cdot}25+0{\cdot}064}{2} \times 0{\cdot}0157$$

$$= \frac{0{\cdot}314 \times 0{\cdot}157}{2} = 0{\cdot}024649. \quad \therefore N = n \times 0{\cdot}024649.$$

For the sixth salvo at 750 m

$$P = \frac{1}{2}\left\{P\frac{1{\cdot}5+1}{3} - P\frac{1{\cdot}5-1}{3}\right\} P\frac{5}{15} = \frac{0{\cdot}492-0{\cdot}1}{2} \times 0{\cdot}207$$

$$= \frac{0{\cdot}392 \times 0{\cdot}207}{2} = 0{\cdot}04572. \quad \therefore \quad = n \times 0{\cdot}04572.$$

For the seventh and last salvo at 600 m

$$P = \frac{1}{2}\left\{P\frac{2{\cdot}4+1}{2} - P\frac{2{\cdot}4-1}{2}\right\} P\frac{5}{10} = \frac{0{\cdot}0825-0{\cdot}424}{2} \times 0{\cdot}31$$

$$= \frac{0{\cdot}401 \times 0{\cdot}31}{2}\Bigg\} = 0{\cdot}0615 \quad \therefore N = n \times 0{\cdot}06155.$$

Therefore the number of hits during the whole seven salvos is $N = n \times (0{\cdot}005814 + 0{\cdot}00792 + 0{\cdot}0103 + 0{\cdot}015938 + 0{\cdot}024649 + 0{\cdot}04572 + 0{\cdot}06155) = n \times 0{\cdot}171891 = 17$ per cent. With an illuminated target let the first salvo be fired at 1,500 metres with a fixed sight of 1,000 m as with the first salvo of the dark target series.

So for the light target we have:—

For the first salvo

$$N = n \times 0{\cdot}005814$$

Similarly for the second salvo

$$N = n \times 0{\cdot}00792$$

For the third salvo at 1,200 m we will suppose the sight

to be set to the distance within 50 m, so that

$$P = \frac{1}{2}\left\{ P\frac{0\cdot3+1}{6} - P\frac{0\cdot3-1}{6}\right\} P\frac{5}{30} = \frac{0\cdot133+0\cdot088}{2} \times 0\cdot1$$

$$= \frac{0\cdot221 \times 0\cdot1}{2} = 0\cdot011. \quad \therefore N = n \times 0\cdot011.$$

For the fourth salvo at 1,050 m suppose the error on the sight is reduced to 25 m, and

$$P = \frac{1}{2}\left\{ P\frac{0\cdot15+1}{5} - P\frac{0\cdot15-1}{5}\right\} P\frac{5}{25} = \frac{0\cdot145+0\cdot106}{2} \times 0\cdot127$$

$$= \frac{0\cdot251 \times 0\cdot127}{2} = 0\cdot015938. \quad \therefore N = n \times 0\cdot015938.$$

For the fifth salvo at 900 m let the sight be correctly adjusted so that

$$P = P\left(\frac{1}{4}\right) P\left(\frac{5}{20}\right) = 0\cdot157 \times 0\cdot157 = 0\cdot024649.$$

$$N = n \times 0\cdot024649$$

For the sixth salvo at 750 m

$$P = P\left(\frac{1}{3}\right) P\left(\frac{5}{15}\right) = 0\cdot207 \times 0\cdot207 = 0\cdot042849.$$

$$N = n \times 0\cdot042849$$

For the seventh and last salvo at 600 m

$$P = P\left(\frac{1}{2}\right) P\left(\frac{5}{10}\right) = 0\cdot31 \times 0\cdot31 = 0\cdot0961.$$

$$N = n \times 0\cdot0961$$

Therefore in the second illuminated case

$N = n \times (0\cdot005814 + 0\cdot00792 + 0\cdot011 + 0\cdot015938 + 0\cdot024649$ $0\cdot042849 + 0\cdot0961) = n \times 0\cdot204270 = 20$ per cent. of hits.

In practice, when the target is not illuminated, unless it is an exceptionally clear night, the errors in shooting are much greater than those shown above, so that the 17 per cent. of hits would be greatly reduced. Similarly, when the target is lit up, taking into consideration the difficulties in adjustment of range and in keeping the sights on, and that it is not always possible to show up all the boats if they are well dispersed, 20 per cent. is a fair estimate even if the errors for a clearly seen target are less than those given.

The above analysis of probabilities again bears out the

principle of extended formations, which also prevent one projector lighting up more than one boat at a time. Ships generally have only 4 lights each side, so that only 4 boats can be lit up on each side simultaneously.

If the number of boats is too great, the formation must be made deeper, otherwise too many boats are crowded together when they arrive at the firing positions; the angular space including these positions is, of course, limited by the proportion between speed of boat and speed of ship. The moral effect of boats sinking near to others taking part in the attack must not be lost sight of. It is generally thought that a division should number 4 to 6, a sub-division or tactical unit 2 to 3. The attack is made by 2 sub-divisions at a time from different sides or sectors, this method being especially useful when the ship manœuvres to parry the attack. (The Japanese used groups of 2 boats; Captain Labrès recommends 3.)

Some nations, such as France, Germany and the United States, attach a scout to the flotilla which conducts the division, and takes part in the attack herself with her torpedoes or by firing at the defending destroyers.

The best manœuvres for attack depend on circumstances and their opportune combination, *i.e.*, to avoid discovery and consequent destruction by gun-fire, and at the same time to obtain the best chance of hitting the ship with the torpedoes.

As regards the ship's guns:—

1. Ships cannot see torpedo-boats more than 1 mile on an ordinary dark night.

2. Experiment has shown that firing with Q.F. guns against a target 6 m. by 2 the hits are only 3 per cent. Lieutenant Dewar says that only 6 hits were made out of 128 shots fired by 12 pounders at 800 yards. It would be very interesting to carry out a long series of experiments of night firing against a target towed at high speed and appearing at unexpected moments.

3. The time a boat is exposed to fire before firing herself is extremely short, only a minute.

In the following table:—

Ship opens fire at 1,500 metres.
Ship speed 14 knots. Torpedo-boat speed 20 knots.
Torpedo speed 34 knots.
Torpedo range 500 metres.
Impact angle of torpedo 90.

TABLE I.

The definitions on first page explain all the terms used.

| | Parallel Attack, *i.e.*, on Ship's reversed course. | | Perpendicular Attack, *i.e.*, Course at right angles to Ship's. | |
|---|---|---|---|---|
| Time under Fire. | Distance Ship to Boat. | Ship-Boat Angle. | Distance Ship to Boat. | Ship-Boat Angle. |
| 0 secs. | 1500 | 19 30 | 1500 | 60 |
| 10 | 1342 | 22 | 1387 | 60 10 |
| 20 | 1185 | 25 | 1265 | 60 30 |
| 30 | 1032 | 29 | 1142 | 60 40 |
| 40 | 890 | 35 | 1025 | 61 30 |
| 50 | 752 | 41 30 | 900 | 62 30 |
| 60 | 635 | 51 30 | 780 | 63 30 |
| 70 | 547 | 66 | 660 | 65 |
| 71.5 | 540 (fire) | 68 | | |
| 80 | | | 540 (fire) | 68 |

No account is taken of the turn necessary when approaching at right angles if there is no right ahead tube.

From Table I we see that the boat remains during the whole 80 seconds of the perpendicular attack in a sector of maximum fire, whereas on opposite courses she is exposed to a sector of diminished fire for the first 30 seconds and encounters the full fire of the ship for only 41 seconds.

The depth of target presented by the boat = length × cosine boat-profile angle. It is greater during the first 30 seconds in the parallel attack, and then diminishes, but in the perpendicular attack the target length increases continually during the approach. In the first case this boat-profile angle is the same as the ship-boat angle; in the second case it is the complement of that angle; in both cases it is the boat-ship angle.

4. The chances of hitting increase with the depth and narrowness of the attacking formation, for when the boats are in close order the target is longer and more easily seen, and *vice-versa* the more the boats are separated on the line at right angles to the line of fire the smaller and more difficult to pick up are the targets.

5. These chances of hitting are a maximum when the boats are massed in lines ahead close together, steering for the ship right ahead of them.

6. If the boats alter course much the hitting chances again increase, for the closing rate then decreases rapidly. In fact even boats with the best turning

powers take 35 seconds to turn 90 degrees at full speed, and in this time their change of position is very small.

I have not mentioned other well known conditions affecting the hitting probabilities, such as the time exposed to fire, sectors of maximum danger, distance and variation rate of bearing.

### PHASES OF THE ATTACK

In a typical attack by torpedo-boats there are three successive phases:—

1st. Getting into contact or reconnaissance.
2nd. Manœuvre to prepare for attack.
3rd. Approach, and discharge of torpedoes.

In the Mediterranean, especially when under the lee of the land and considering the high position of the bridge in the most modern boats, the latter should often make out the ships, especially when in close order, before they themselves are observed.

Ships cannot hope to sight torpedo-boats above a mile distant, even if warned of their approach by the defending destroyers, whereas torpedo-boats can sight battleships between 2,000 and 3,000 metres.

Those boats that have succeeded in passing the screen of destroyers, having seen the vague mass of the enemy's ships or their searchlights, will approach nearer to recognise them and to make out their course, then retire if necessary and take their stations for attack.

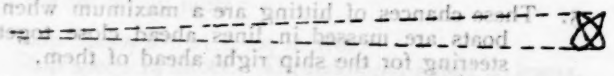
### CONDITIONS OF ATTACK

Let us consider the conditions of attack:—

1st. Only one torpedo can be fired from each tube in one attack, the tubes being nearly certain of destruction, so that great care must be taken to get into a good position and to fire at the right moment.

2nd. It is a mistake to fire torpedoes at great distances against moving ships because of the difficulties of estimating the enemy's speed and course, the speed of a torpedo not being yet sufficiently great to counteract aiming errors.

3rd. The speed of ship can generally be better estimated than the course. Thus, the profile of two ships on courses making supplementary ship-observer angles is at long distances the same.



Expert observers can estimate the speed of a ship within 3 knots and course to within 20°.

4th. The chance of a torpedo hit increases inversely as the distance, but the torpedo should not be fired at less than 100 metres, so as to give the torpedo time to steady on its course. The poor results which the Japanese obtained in the Russo-Japanese War is supposed to have been due to their desire to fire their torpedoes at extreme range, often firing beyond it in consequence.

5th. The chances of a hit increase inversely as the speed of the ship, so one must get closer if the ship speed is greater.

6th. If the ratio target speed /torpedo speed=1/2, the chance of hitting varies with the ship torpedo courses-angle or angle of impact; the hitting probabiliy is greatest at 90°, is very good between the bow angles 90° and 30°, but decreases rapidly for bow angles above 90°, as is evident on examining Table 2.

7th. There is a very good hitting chance up to 700 m. with a torpedo speed of 34 knots, or 41 seconds run, but this chance decreases quickly for greater distances.

8th. We must also remember that for a torpedo fired above 700 m. off, the ship has time to manœuvre and avoid it, or make the angle of impact so small or so large as to prevent the pistol acting. Present time battleships turn 90° in 80 seconds.

TABLE 2.

Numbers proportional to chance of hitting with torpedo.

| Angle of Impact. | Ratio of Target speed to Torpedo speed. | | |
|---|---|---|---|
| | ½ | ⅓ | ¼ |
| 0 | 3·88 | 4·61 | 5·40 |
| 10 | 3·58 | 4·27 | 5·00 |
| 20 | 6·42 | 7·83 | 9·29 |
| 30 | 8·52 | 10·75 | 13·00 |
| 40 | 9·89 | 13·18 | 16·22 |
| 50 | 10·68 | 15·10 | 19·14 |
| 60 | 11·09 | 16·87 | 22·03 |
| 70 | 11·34 | 18·65 | 25·16 |
| 80 | 12·91 | 21·05 | 29·42 |
| 90 | 12·98 | 25·14 | 36·26 |
| 100 | 7·90 | 16·48 | 24·58 |
| 110 | 5·17 | 11·51 | 17·69 |
| 120 | 3·55 | 8·37 | 13·14 |
| 130 | 2·50 | 6·14 | 9·87 |
| 140 | 1·78 | 4·52 | 7·38 |
| 150 | 1·24 | 3·22 | 5·34 |
| 160 | 0·81 | 2·12 | 3·56 |
| 170 | 0·41 | 1·09 | 1·84 |
| 180 | 0·44 | 1·16 | 1·96 |

This table is calculated by Professor Alger, for a target surface varying with the angle of impact.

TABLE 3.

Maximum lateral errors of torpedo at a buoy target.
Ratio ship speed/torpedo speed = 1/2.
Error in estimated ship speed = 1/10 of the speed.
,, ,, ,, course one point.

| Bow angle from Ship at instant of firing Torpedo. | Distance in Metres. | | |
|---|---|---|---|
| | 500 | 750 | 1000 |
| 0 | 33 | 50 | 67 |
| 10 | 36 | 54 | 72 |
| 20 | 39 | 58 | 77 |
| 30 | 41 | 62 | 82 |
| 40 | 43 | 65 | 86 |
| 50 | 45 | 67 | 89 |
| 60 | 45 | 67 | 90 |
| 70 | 44 | 66 | 87 |
| 80 | 38 | 57 | 76 |
| 90 | 33 | 50 | 67 |
| 100 | 49 | 73 | 98 |
| 110 | 65 | 97 | 129 |
| 120 | 80 | 120 | 159 |
| 130 | 92 | 138 | 184 |
| 140 | 102 | 153 | 204 |
| 150 | 108 | 162 | 216 |
| 160 | 109 | 164 | 219 |
| 170 | 107 | 161 | 213 |
| 180 | 100 | 150 | 200 |

The two errors are added together and from the maximum error in estimates thus arrived at Professor Alger has calculated the above distances of the torpedo from the buoy at the point of greatest proximity, viz., at the moment the torpedo-buoy angle is a right angle.

9th. An angle of impact of 30° is enough to insure the action of the torpedo; a somewhat exaggerated idea of the necessity of a large impact angle is in vogue.

10th. Torpedoes fired at greater distances than 600 metres can also succeed if the impact angle is less than 90°, as a component of the ship-speed is added to the torpedo-speed, decreasing the range; but if the impact angle is greater than 90° the range is increased and a miss results.

11th. Whereas for a boat firing from well before the beam of the ship the torpedo range is less than the distance at moment of firing, if the ship-boat angle is greater than the after impact-angle, the torpedo range is greater than the firing distance.

12th. Aiming while the boat is turning is less difficult than one thinks, as one is prepared for it and the boat turns at a uniform rate; on the other hand, on a straight course the boat often makes unexpected yaws which disturb the aim.

13th. Estimating the speed and distance of the target when approaching at right angles is much easier than from the parallel opposite course to the ship.

14th. The torpedoes should be fired from such positions as exclude the possibility of hitting a friendly boat.

15th. If the torpedoes from several boats are fired simultaneously, or nearly so, the chance of hitting is increased, the errors cancelling each other and giving the same advantages as salvos of guns.

If p is chance of hitting of each torpedo, then $P = 1 - (1-p)^n$ = chance of hit with at least one torpedo if n torpedoes are fired; p being always nearer to zero than to unity, evidently P will be considerably greater than p.

16th. The theory of probability will give us an approximate idea of the relative value of torpedoes fired in different circumstances.

Let the maximum error of estimated ship-speed $= \frac{\Delta v}{v} = \frac{1}{3}$

" " " " ship-course $= \Delta R = \frac{1}{2}$

the unit being the quarter radian or about 30°.

Let ship-speed/torpedo speed = 1/2.

Let distance ship to boat at instant of firing = 600 m.

Taking the favourable firing position on the ship's bow bearing of 40°, which gives an impact angle of about 60°.

From Table 4 we get the lateral errors due to errors in estimating ship's speed and course, thus:—

$D' = 600 \times 1/3 \times 0{\cdot}2558 = 51{\cdot}16$ or about 50 m.

$D'' = 600 \times 1/2 \times 0{\cdot}3042 = 91{\cdot}26$ or about 90 m.

Total lateral error $= 50^2 + 90^2 = 102$ or about 100 m.

Similarly, taking the symmetrical impact-angle 120°, which gives a firing position on the ship's bow bearing 90°, we find by the table that the total lateral error is 130 m.

For both these firing bearings the target exposed is 100 s in 60 (taking ship length 100 m.) = $100 \times 0{\cdot}866 = 86{\cdot}6$ or about 80 m.

With a total lateral error of 100 to 130 m., the hitting chances P and P/ for a target 80 m. long (*i.e.*, of having an error less than 40 m.), using Alger's Tables, are:—

P for × 40/ d 100 = 0.25 = 25 per cent.

P′ × 40/ d 130 = 0.18 = 18 per cent.

But I have already said that if, for example, a ship can concentrate the fire of two guns on each boat, every boat sighted at 1,500 m. has a 0·20 chance of getting to the firing point intact. Therefore, the combined probability of any particular boat arriving and hitting is:—

$0{\cdot}20 \times 0{\cdot}25 = {\cdot}05 = 5$ per cent. from the 40° bearing.

$0{\cdot}20 \times 0{\cdot}18 = {\cdot}036 = 3{\cdot}5$ per cent. from a 90° bearing.

If three boats on a line of bearing all succeed in firing their torpedoes nearly simultaneously from favourable positions as above explained (neglecting slightly different angles of impact), the chance of one torpedo hit is:—

$1-(1-0.25)^3=1-0.42185=0.578125$ or 57 per cent. in the foremost sector.

$1-(-0.18)^3=1-0.6=0.40$ per cent. in the after sector.

Thus we see the great advantages of simultaneous attack. But each boat has a 0·2 chance of getting to firing point intact. Therefore the chance of one boat getting to firing point is:—

$1-(1-0.2)^3=1-0.5=0.5=50$ per cent.

Finally, the total probability that the lucky boat arriving at the firing point also hits the ship is:—

$0.5\times0.25=0.125=12$ per cent. in the foremost sector.

$0.5\times0.18=0.090=9$ per cent. in the after sector.

Thus the chance of the ship escaping from an attack by 3 boats is 22 to 3 on the ship, in one case, and 10 to 1 in the other.

TABLE 4.

| Ship-boat angle (on firing Torpedo). | Torpedo-Ship angle (on firing Torpedo). | $\frac{D'}{\Delta v/v}\cdot S$ | $\frac{D''}{\Delta R.S}$ |
|---|---|---|---|
| 0 | 0 | 0·0 | ·3333 |
| 10 | 4·59 | ·0586 | ·3321 |
| 20 | 9·51 | ·1193 | ·3278 |
| 30 | 14·29 | ·1843 | ·3193 |
| 40 | 18·45 | ·2558 | ·3042 |
| 50 | 22·31 | ·3329 | ·2799 |
| 60 | 25·40 | ·4174 | ·2410 |
| 70 | 28·02 | ·5053 | ·1839 |
| 80 | 29·30 | ·5649 | ·0996 |
| 90 | 30·00 | ·6667 | ·0 |
| 100 | 29·30 | ·7221 | ·1273 |
| 110 | 28·02 | ·7482 | ·2723 |
| 120 | 25·40 | ·7379 | ·4260 |
| 130 | 22·31 | ·6881 | ·5776 |
| 140 | 18·45 | ·6031 | ·7175 |
| 150 | 14·29 | ·4828 | ·8362 |
| 160 | 9·51 | ·3370 | ·9258 |
| 170 | 4·59 | ·1700 | ·9820 |
| 180 | ·0 | ·0 | 1·0000 |

Ship-speed/torpedo-speed = 1/2.

$D'$ = lateral error due to error in estimated ship-speed.

$D''$ = " " " ship-course.

$S$ = distance ship to boat on firing torpedo.

$\Delta v/v$ = error in estimated ship-speed/ship-speed.

$\Delta R$ = " " ship-course in 1/4 radians. (about 30°)

This Table was calculated by Professor Alger.

Supposing the chances of one boat of the attackers arriving at the firing point unseen are 60 per cent., or 3 to 2 on, what is the minimum number of groups of three necessary to get another

40 per cent. or 2 to 3 chance that the *discovered* boats hit the ship? so that the chances of the undiscovered boat+the chances of the discovered boats shall be very good. The chance of one discovered group making one hit is 12 per cent. Therefore:—

We require the chance of success of n groups to be 0·4
or ,, failure ,, ,, 1—0·4
But the ,, ,, one group is 1—0.12
$\therefore 1-0{\cdot}4=(1-0{\cdot}12)^N$

$$n=\frac{\log 1-0{\cdot}4}{\log 1-0.12}=\frac{\log 0{\cdot}6}{\log 0{\cdot}88}=\frac{-1{\cdot}7782}{-1{\cdot}9445}=\frac{0{\cdot}2218}{0{\cdot}0555}=4$$

We therefore require 4 groups or sub-divisions of 3 each. The question now arises whether in making an attack of 2 sub-divisions on each side of the ship, it would be better to let 1 sub-division on each side attack simultaneously from abaft the other, as in Fig. 7, or that each sub-division should attack on the ship's reversed course in succession as in Fig 6.

In the first case the foremost sub-divisions chance is 12 per-cent., and the after one's chance is 9 per cent.; therefore the division chance is 21 per cent.

In the parallel attack in succession, the ship might increase the number of guns against each boat on perceiving that the attack was only from this sector, *i.e.*, after 20 seconds or at the 4th salvo some of the after guns would be pointing out of their sector in aid. Suppose at the 4th salvo 3 guns instead of 2 were in action against each boat, 4 extra shots would be fired. Each boat's chance of being hit is:—

$1-(1-0{\cdot}1)^{18}=1-0{\cdot}9^{18}=1-0{\cdot}149=0{\cdot}851.$

The chance of one boat getting to firing point is
$1-(1-0{\cdot}149)^3=1-0{\cdot}616=0{\cdot}384$

The chance of first sub-division hit with torpedo is
$0{\cdot}384\times0{\cdot}25=0{\cdot}096.$

Therefore chance of first division success is
$0{\cdot}096\times1=0{\cdot}192=19$ per cent. or 4 to 1 against.

Thus the two kinds of attack are practically of equal value, especially as the extra guns mentioned are doubtful.

17. In the Parallel Attack the tube can be trained to a bow-angle equal to the minimum impact-angle desirable, whereas in the Perpendicular Attack the tubes should be trained as far ahead as possible to minimise the turn necessary for getting the sights on for firing.

18. Though the torpedo hitting chances increase as the distance decreases, yet the torpedo-boat arrival chances decrease; it therefore seems to me that in a boat under fire possessing

several tubes, the first torpedo should be fired at the greatest distance offering a reasonable chance of success, keeping the others for closer range.

The distance for the first torpedo depends on the product of the boat's immunity chance and the torpedo's hitting chance, and should correspond to the maximum value of this product. To give an idea of the relative values of the firing distance, look at the gun hitting chances against a dark target given above.

There we find the hitting chance of n guns is

| | | |
|---|---|---|
| Between | 1,500 and 600 m | n X 0·17 |
| ,, | 900 | 0·06 |
| ,, | 1050 | 0·03 |
| ,, | 1200 | 0·02 |

Hence, if 2 guns fire at each boat the total hitting chance is:—

At

| | | | |
|---|---|---|---|
| 600 m | $P' = 1-(1-0{\cdot}17)^{14} = 1-0{\cdot}073$ | Boat's escape chance | $=0{\cdot}077$ |
| 750 | $P'' = 1-(1-0{\cdot}11)^{12} = 1-9{\cdot}247$ | ,, ,, | $=0{\cdot}243$ |
| 900 | $P''' = 1-(1-0{\cdot}06)^{10} = 1-0{\cdot}538$ | ,, ,, | $=0{\cdot}583$ |
| 1050 | $P'''' = 1-(1-0{\cdot}03)^{8} = 1-0{\cdot}783$ | ,, ,, | $=0{\cdot}788$ |
| 1200 | $P''''' = 1-(1-0{\cdot}02)^{6} = 1-0{\cdot}885$ | ,, ,, | $=0{\cdot}853$ |

Let ship speed/torpedo speed = 1/2.
Ship-boat angle at torpedoing instant 40°.
Hence impact-angle 60°.
Let lateral errors be 100, 200, 300, 400, 500.
For distances 600, 750, 900, 1,050, 1,200 respectively.
Target exposed perpendicular to torpedo-course = 80 m.
The torpedo-hitting chance of such a target is Px/d or

| | | |
|---|---|---|
| At 600 m | P for x/d | 40/100 = 0.25 |
| 750 | | 40/200 = 0·127 |
| 900 | | 40/300 = 0·082 |
| 1050 | | 40/400 = 0·064 |
| 1200 | | 40/500 = 0·04 |

By Alger's Tables.

Hence the chance of the simultaneous event Intact Boat and Ship hit is:—

| | | |
|---|---|---|
| At 600 m | 0·073 X 0·25 | 0·01825 |
| 750 | 0·247 X 0·127 | 0·03136 |
| 900 | 0·538 X 0·082 | 0·04411 |
| 1050 | 0·783 X 0·064 | 0·05011 |
| 1200 | 0·885 X 0·04 | 0·03540 |

So that 1050 metres is the distance giving the greatest probability of success. Torpedo-range = 1050 X s in 40/s in 120 = 777 metres.

19. It seems to me that boats with several torpedoes should fire all of them rather than sink with all their unused missiles.

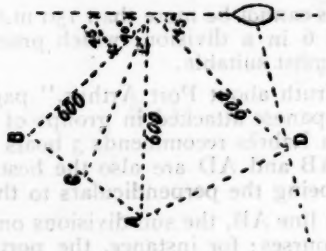
20. In order to diminish the chances of discovery, torpedo-boats should avoid emitting flames and smoke from their funnels, consequently not forcing their speed until seen.

Summarising the attack, it appears that:—

1. The best positions for commencing the Attack-Approach are in the two foremost quadrants; this renders it necessary to get well ahead of the enemy beforehand.

2. Without doubt it is better to attack on the reversed ship course in succession in sub-divisions, but simultaneously from either side if possible. The Two-side Attack is more likely to disconcert the enemy, and the resulting concentration of his attention on the first boats seen favours attacks carried out in rapid success, enabling some boats to reach striking distance unobserved.

FIG. 2.




It is evident that the aftermost torpedoing position for obtaining an impact-angle not greater than 90° will be that corresponding to torpedo and ship courses at right angles.

The Ship-Boat torpedoing bearing depends on the ratio, ship speed/torpedo speed, the zone of good torpedoing positions is comprised within the ship's bow angle of 60°, for cot 60° = about 1/2.

With the same speed ratios and a 600 metre torpedo range and a limiting impact-angle of 135°, the extreme torpedoing bearing can be determined by Fig. 2.

Resolving the triangle, torpedo-speed, impact-angle and ship-speed, the ship-boat angle is found to be 107°.

We can, then, distinguish two efficient torpedoing zones, one between the angles from ahead 30° and 60°, giving impact-angles from 40° to 90°, the other between the angles from ahead

60° and 110°, giving impact angles 90° to 135°. If the ratio ship-speed to torpedo-speed is less, the zone angles are greater.

I will now pass to the examination of the most important moment—the torpedoing moment—with a view to ascertaining the best disposition of the boats to render this culmination of the attack successful, for everything else must be sacrificed to this end.

At first I must reiterate the maxim of dispersion of force and concentration of effect; it is the only way of surprising the enemy, and increases the torpedo chances enormously, chances which for each separate torpedo are very small.

It follows that the boats of each sub-division must arrive at torpedoing positions simultaneously.

The torpedoing zones are not only limited by the profile angles 30° to 60° and 60° to 110°, but also by the impact angle 45° to 135°, and the torpedo-range 600 metres (*vide* Fig. 2).

In Fig. 2 the boats of each sub should arrive together on the arcs or chords AB and AD.

Then the greatest length of AB=AD=2BC $2 \times 600 \times s$ in $22° 30' = 444$ m.

So the boats cannot be more than 150 m. apart, with 3 in a subdivision and 6 in a division, which practically fixes these numbers as the most suitable.

In "The Truth about Port Arthur," page 99, line 17, we read that the Japanese attacked in groups of two boats in succession; Captain Labrès recommends 3 boats to a group.

The lines AB and AD are also the best for encountering the ship's fire, being the perpendiculars to the fire lines.

For the best line AB, the sub-divisions on either side might steer different courses; for instance, the port one might steer the ship's reversed course and the starboard one might steer at right angles. The Parallel Attack is obviously the least exposed, because the closing rate is a maximum and the Attack Approach is half the time in a zone of reduced gun fire, *vide* Table 1, page 719.

If the sector 0° to 30° is commanded by 3 guns, and the sector 30° to 90° by 6 guns, the boats on the ship's reversed course receive the first 4 salvos of only one gun each, whereas the Perpendicular Attack receive 2 guns' fire each the whole time.

The Parallel Attack receive 8 salvos, or 12 shots each, in 71 seconds.

The Perpendicular Attack get 9 salvos, or 18 shots each, in 80 seconds.

If 10 per cent. of shots are hits, the immunity chance of each boat is, in the first case $1-(0{\cdot}1)^{12}=0{\cdot}28$; and in the second case $1-(0{\cdot}1)^{18}=0{\cdot}15$.

It therefore appears that the Parallel Attack is incomparably superior; if two sub-divisions attack from ahead they can foil the ship's parrying manœuvres by dividing. For instance, in

Fig. 3.

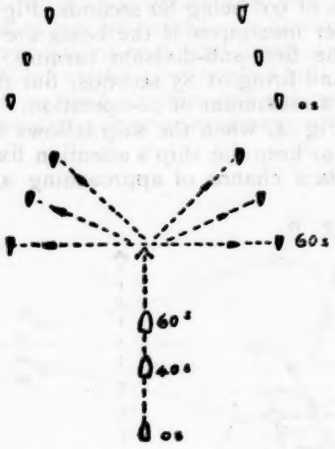



Fig. 4.

Fig. 5.

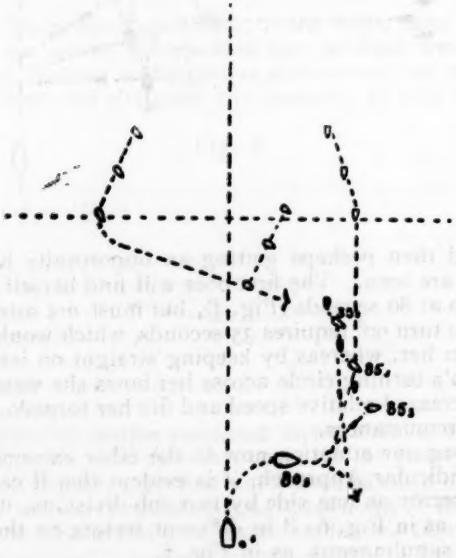


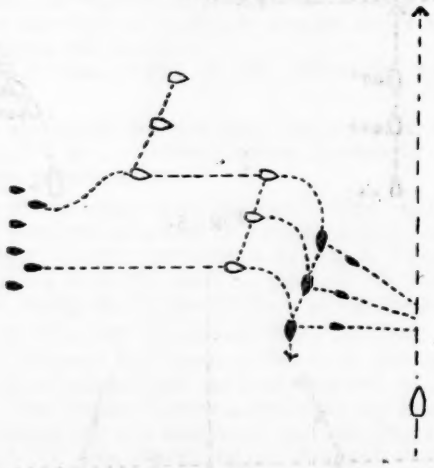
Fig. 4, if the ship keeps steering for the boat first sighted, the boat will be in a sector of diminished fire the whole time.

Or, as in Fig. 5, the ship may put her helm hard over to get the boats further astern, and thus minimise the torpedo hitting chances.

The greatest distance of sighting torpedo-boats being 1,500 metres, and the time for a turn of 90° being 80 seconds, Fig. 5 illustrates the attackers' counter manœuvre if the boats are in sufficiently extended order, the first sub-division turning together at 80 seconds to port and firing at 85 seconds, but this is a critical case, and requires a maximum of co-operation.

Returning to the case in Fig. 4, when the ship follows the first boat, the boat should try to keep the ship's attention fixed on her to give the other boats a chance of approaching and

Fig. 6.

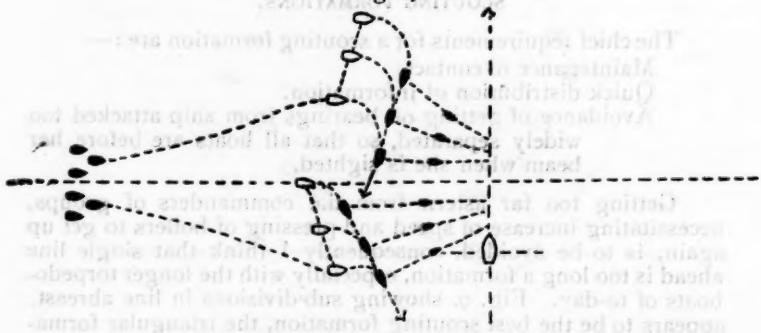


firing, and then perhaps getting an opportunity herself when the others are seen. The first boat will find herself close ahead of the ship at 80 seconds (Fig. 4), but must not attempt to turn away, as to turn 90° requires 35 seconds, which would enable the ship to ram her, whereas by keeping straight on into the inside of the ship's turning circle across her bows she would pass at a greatly increased relative speed and fire her torpedo, though not in good circumstances.

Turning our attention now to the other extreme case, viz., the Perpendicular Approach, it is evident that if carried out in the same sector on one side by two sub-divisions, it must be in succession as in Fig. 6; if in different sectors on the same side, it may be simultaneous, as in Fig. 7.

The general principles deduced from the above analysis are that attacks should be made by sub-divisions from well before the ship's beam in lines of bearing perpendicular to the line of fire or ship-boat line. The sub-divisions will therefore be in lines abreast for the Perpendicular Attack, and nearly in lines ahead for the Parallel Attack, the second and third boats keeping slightly towards the ship's course, *vide* Figs. 3, 4, 5. In this case the tubes will be trained at a bow angle, diminishing from the first to the third boat, and firing simultaneously, the impact-angles (equal to the bow angles) will be slightly different from each other, the first series at 1,000 metres (torpedo range 750) and the remainder at shorter distances.

Fig. 7.



In the Perpendicular Attack, if the boats have gyroscopic torpedoes, the whole 9 torpedoes can be fired simultaneously right ahead, making a dangerous zone about 100 metres wide from each boat and obviating the necessity to turn to fire, *vide* Fig. 8.

Fig. 8.

The attack formation proposed leaves room ahead for each boat to manœuvre, allows everyone to see the enemy, decreases the probability of being sighted simultaneously and of being hit, and finally allows of simultaneous torpedoing. It appears to me to be the best method of attack under the best conditions without preventing a favourable opportunity of any sort being

seized. It is not proposed to be always in this formation before the attack, though it is more logical to organise everything with regard to the attack formation rather than to preliminary formations.

The approaching formation, then, should resemble as closely as possible the attack formation; the quicker the attack formation can be taken up from the scouting formation the better.

In the preliminary phase of searching for the enemy the boats will of course steer fixed courses on some plan, according to the circumstances of the case and the information available, and arranged for the complete co-ordination of the scouting services of the various groups for fixing the enemy's position.

### SCOUTING FORMATIONS.

The chief requirements for a scouting formation are:—

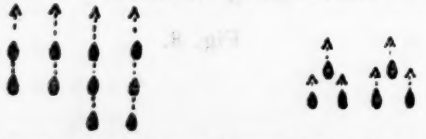
Maintenance of contact.

Quick distribution of information.

Avoidance of getting on bearings from ship attacked too widely separated, so that all boats are before her beam when she is sighted.

Getting too far astern from the commanders of groups, necessitating increase of speed and pressing of boilers to get up again, is to be avoided, consequently I think that single line ahead is too long a formation, especially with the longer torpedo-boats of to-day. Fig. 9, showing sub-divisions in line abreast, appears to be the best scouting formation, the triangular formation for divisions of six boats is recommended by Labrès, and, according to Chandler, is used by the Germans.

Fig. 9.

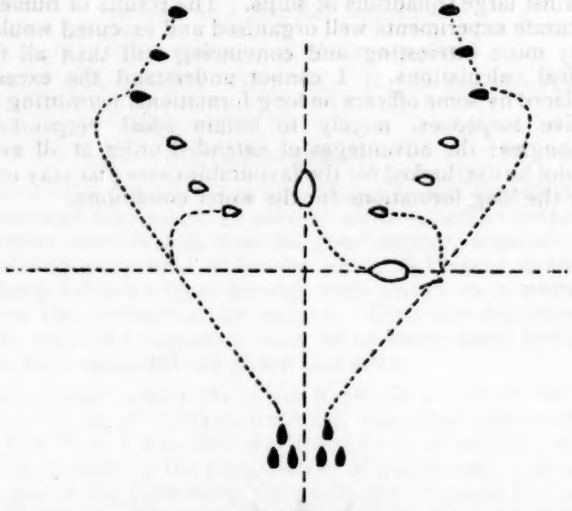


Lines abreast offer the greatest security for navigation at night without lights, especially when the course is fixed beforehand as when scouting; they permit a better look-out ahead, and are easier to keep than those accustomed to line ahead would believe.

On the other hand, in line ahead at high speed it is easy to lose contact or to incur danger of collision, especially without lights, when 100 metres is enough to lose sight of the stern of the next ahead, but in line abreast the dark lines of the whole length of the other boats are visible at much greater distances to their neighbours. We all know the intense attention required to maintain the line ahead, exercising a very tiring effect on the station keepers. Columns of sub-divisions in line ahead pre-

sents the tactical groups well clear of each other and ready to separate at any moment for the necessary manœuvre for position. Fig. 3 shows how well this formation adapts itself to the Parallel Attack. Figs. 6 and 7 show its use for the Perpendicular Attack. In the Perpendicular Attack if the ship keeps her bow pointed towards the first boat sighted, the result would be the same as in the other form of attack. If, however, she turned away she would have ample time to present her stern to the attackers, who must then divide and attack again from one or both sides (see Fig. 10).

Fig. 10.



I have analysed the attacks in the foremost sectors of the ship's bearings, and shown the advantages of the line abreast formation. Attacks from the after sectors can only be considered forlorn hopes. I do not deny the disadvantages attaching to line abreast, but while it is easy to form line ahead from line abreast, the inverse manœuvre is slower. These formations are simply the means of proceeding to the starting points of attack; the individual boats are not tied to the formation, but must merely keep in sufficient extended order and endeavour to co-operate with one another not only by non-interference, but by active assistance keeping the ship's attention fixed or by keeping their relative positions so as to arrive simultaneously at the torpedoing point.

I have not tried to enumerate the actual orders necessary, but simply to enunciate general principles, to indicate the object

of the manœuvres rather than the actual manœuvres themselves. In practice perhaps the flotilla would remain in close order until the ship is sighted, then extend to take up stations for attack, then try to arrive at the firing point simultaneously, being careful, when turning to retreat after firing, not to obstruct the movements of others; in the parallel attack no boat should fire her torpedo before her next ahead has fired hers; and in the perpendicular attack the boats bearing furthest aft from the ship should fire first.

These formations appear to be the most rational theoretical solution of the complicated problem presented, and their realisation is certainly feasible when the nights are not very dark, and against large squadrons of ships. The results of numerous and accurate experiments well organised and executed would be certainly more interesting and convincing still than all these theoretical calculations. I cannot understand the excessive value placed by some officers on long formations, permitting only successive torpedoes, merely to obtain ideal perpendicular impact-angles; the advantages of extended order at all events should not be overlooked for the favourable cases that may occur, leaving the long formations for the worst conditions.

# THE USE OF EXPLOSIVES IN AERIAL WARFARE, WITH SOME REMARKS ON METHODS OF DEFENCE.

By WALTER F. REID, F.I.C., F.C.S., President of the Society of Chemical Industry.

On Wednesday, 22nd February, 1911.

SIR ANDREW NOBLE, Bart., K.C.B., in the Chair.

## HISTORICAL SURVEY

VERY soon after the invention of balloons by the French it was suggested that they might be used in warfare, and a *Compagnie d'Aérostiers* was created, and did good service, especially for reconnoitring purposes. From the battle of Fleurus to that of Paardeberg balloons have proved their utility as a means of observing the position of the enemy. Their use for offensive purposes naturally suggested itself at an early date; but such trials as were made did not prove successful.

*Employment under the First Republic.*—One of the reasons why the use of balloons remained somewhat restricted under the first French Republic was the scarcity of sulphur, which was indispensable for the manufacture of gunpowder, and could not be spared for generating the hydrogen required for inflating the balloons. Captain Coutelle worked out a process for producing hydrogen by the decomposition of steam in contact with red-hot iron; but the furnaces required for this purpose were cumbersome and their transport difficult. Even now this process can scarcely be considered a practicable one for military purposes. In connection with Napoleon's schemes for the invasion of England, many suggestions were made for the use of balloons as a means of attack; but these, as well as the sketches to which they gave rise, are now more a source of amusement than of instruction.

*Employment by the Austrians, 1849.*—The Austrians appear to have been the first to put balloons to practical use as a means of attack. In 1849, during the siege of Venice, no position within range of the town could be found for the siege guns, and it was resolved to employ balloons. Montgolfier, or hot air, balloons were used, made of thin writing paper, and having a cubical capacity of 94 cubic metres each. The lifting power of

such a balloon was 31 kilogrammes (68 lb.), and bombs of 15 kilogrammes (33 lb.) could be carried by them for about half an hour. The point of departure of the balloons was necessarily dependent upon the direction of the wind and was determined with the aid of a map and pilot balloons. The charge of explosive was dropped by means of a time fuze, the distance and the velocity of the wind being taken into account. In inflating and sending up the balloons a portable screen was used, and the whole equipment required five waggons for its transport. The effect upon the enemy of this novel method of attack was more moral than material, although some of the charges were effective, one of them bursting in the Square of St. Mark. On more than one occasion the balloons, driven by unexpected air currents, discharged their missiles upon the besiegers instead of the besieged, and their use was abandoned. Although at that time only partially successful, the use of hot air balloons might well be revived at the present moment with better hopes of success. They are cheap, portable, and, with the aid of liquid fuel, can be made much more efficient than formerly. With a map, and two observers connected by telephone, the position of a balloon can be determined with a fair degree of accuracy, and a fuze, detonated by Hertzian waves, would enable the charge to be dropped within a comparatively small area. The advantage of such free balloons is the practical impossibility of defence against them, as they are not dependent upon a crew for their efficiency, and to hit them with a projectile would simply mean exploding their charge sooner.

*Employment in 1862 and other Campaigns.*—The use of balloons for directing the fire of artillery is, of course, well known. General Stoneman, at New Bridge, on May 24th, 1862, appears to have been the first to use them for this purpose against an enemy altogether out of sight of his gunners.

On the night of January 18th, 1900, the position of the Boers on the Tugela was reconnoitred by means of rockets discharged from a balloon, and much useful information was thus obtained.

Kites have also been used for the purpose of dropping explosives upon an enemy. In 1869, during the civil war in Japan, the government troops besieged the fortress of Wakamatzu. The besieged, by means of a kite, sent up a man, who dropped explosives upon the enemy; but the effect seems to have been slight. In 1866, during the war between Brazil and Paraguay, General Caxias used a balloon in the swamps of Neembucu, and the destruction of this balloon by fire was one of those remarkable cases of apparently spontaneous combustion which have occurred several times with balloons.

*Mishaps due to Electricity.*—Some of these mishaps may possibly be due to electricity. When a current of dry air passes over varnished material, especially over oiled silk, a considerable amount of electricity is generated, and this may accumulate

in the balloon to such an extent that sparks are generated should the balloon approach any conductor of electricity. With a free spherical balloon there is little friction against the air, except during ascent and descent; but with dirigibles and captive balloons, danger may arise during dry weather. Explosives carried in balloons should be packed in materials that are bad conductors of electricity, and they should not be placed in the vicinity of metal articles such as grapnels. Electricity, however, is destined to play an important part in the working of aerial craft. Already in 1854 experiments were made at Vincennes with an electrical apparatus for dropping projectiles from a captive balloon. These experiments were only partially successful; but with the recent progress in the science of electricity, as well as in the construction of balloons, much better results may be hoped for. Since these experiments were made, the science of aeronautics has advanced by leaps and bounds. A city like Paris, if besieged, could now communicate with the outer world, either by dirigible or aeroplane, and might make use of either for offence as well as defence.

### POSSIBILITIES OF OFFENCE BY AERIAL CRAFT

*International Agreements.*—There seems to be a general impression that the use of explosives from aerial craft is prohibited by international agreement, but this is not the case. At the peace conference at the Hague, in 1898, the great Powers agreed to prohibit the dropping of explosives and projectiles from balloons for five years; but in 1907 Germany and France withdrew from this undertaking. There can be no doubt, therefore, that in the next European war this, the most recent means of attack, will be fully utilised. It behoves the British nation to make such preparations that we shall not be caught unprepared. In making our preparation, however, it would be folly to overestimate the dangers we may have to meet, as is so frequently done by some alarmists. Let us calmly consider, in the light of experience, what damage could be done by such charges of explosives as might be carried by dirigibles or aeroplanes

*Possible Objectives of Dirigibles.*—As regards dirigibles, they could only approach an enemy having aeroplanes at his disposal, if they themselves were protected by a fleet of aeroplanes. Night attacks might indeed be made, but would be of little use, not only on account of the difficulty of steering, but also because it would be almost impossible to aim accurately without a good light.

Attacks upon individuals however eminent, may be disregarded from the national point of view; they would but spur us on to reprisals. I have heard a distinguished general say that much of the splendid work done by our troops during the Indian Mutiny was inspired by the memory of the women and

children murdered by the mutineers. At any rate, among civilised nations the lives of non-combatants are spared, and aeronauts wilfully sacrificing them would have a short shrift, if caught. Public buildings and hospitals are usually spared, and one use to which captive balloons have been put has been to indicate to the artillery of their own side the positions of such buildings so that they might not be struck by shells. On the other hand, arsenals, dockyards, fortresses of all kinds and especially powder magazines are targets that would at once attract an aerial enemy. Explosive factories, as I have pointed out elsewhere, have little to fear, for the buildings are so sub-divided and protected by mounds that even if half a ton of dynamite were dropped upon one of them, and exploded, the damage would be but local. Explosive magazines belonging to private owners are also in such positions, and the quantities are so reduced that nothing but local damage would result from attacks upon them. Some of the government magazines, however, contain unnecessarily large quantities of explosives massed together, and one of the largest of them is so near a populous town that a great disaster might be produced under the new conditions of warfare. The War Office should, at the earliest possible moment, sub-divide these masses of explosives and isolate each magazine from its neighbours, as is done by private manufacturers under the Explosives Act. Modern smokeless powder would probably keep better if stored underground, and such a method of storage would afford additional security against aerial attack.

As regards arsenals much damage might be done if an attacking aeronaut could make sure of hitting one particular building among many, which is at present very doubtful. In connection with dockyards it will be remembered that the Japanese, on entering Port Arthur, expressed their surprise at the small amount of damage done by their heavy shells, which had rained vertically upon the Russian ironclads for weeks. It must also be remembered that the penetrative power of a shell is much greater than that of a charge of explosive.

As regards fortresses, they are already prepared to resist such attacks as might be made upon them from above. Here, as well as in the field, horizontal screens of canvas might be used to hide the movements of bodies of men or specially vulnerable points.

*Powers of Offence of Aeroplanes.*—Unless some quite new and unexpected developments should take place in aeroplanes they will be unable to carry charges of explosives that could do more than local damage, always remembering the limited radius within which destruction is wrought by modern high explosives. Rapid motion is essential to them, and to aim correctly from a rapidly moving station must always remain a very difficult matter, requiring great skill and practice to obtain even average results.

Dirigible balloons can carry larger charges and provide steadier platforms; but these unwieldy craft are already at the mercy of such aeroplanes as we now possess and, before this year comes to a close, we shall have a sufficient number of British aeronauts to deal with any foreign dirigibles that may reach our shores, provided that some little assistance is afforded by the War Office in the matter of weapons, and instruction in the use of explosives. Having come into contact with many of our aeronauts, I have no hesitation in saying that they are a great national asset. For courage, coolness and fertility of resource no body of men can surpass them, and I feel assured that there is not one of them who would not willingly place himself and his craft at the service of our country should the necessity arise. Such men should meet with every encouragement from those who are responsible for the defence of this country.

## DIRIGIBLES VERSUS AEROPLANES

*Rapid Development of the Aeroplane.*—Although the prospects of dirigibles as instruments of warfare appeared bright a few years ago the rapid development of mechanical flight has, in my opinion, now pushed them into the background. So high an authority as Colonel Capper said, in October last, that, in the future, the aeroplane will knock the dirigible out from war; but he qualified that opinion by saying that we are not in the future yet. At that time the carrying of passengers on an aeroplane was exceptional, now it is an everyday occurrence and, although the nervous strain on the pilot may still be as great as ever, yet the second occupant of the craft is as free to attend to aggressive matters as a passenger in a dirigible. If aeroplanes had not appeared upon the scene dirigibles might have inflicted serious injury upon our navy, and, even now, our ships will not be safe until they have a sufficient supply of aeroplanes. Such aeroplanes can be constructed to rise from and alight upon the water, as has recently been done with the Curtiss biplane; but refuge ships will have to be provided for stormy weather.

*Relative Value in Rough Weather.*—When the water is too rough for an aeroplane, starting platforms may be necessary; but an attack by dirigibles is scarcely to be feared in windy weather. One by one the much-vaunted Zeppelins have come to grief, and no means have yet been devised to enable a large dirigible to land with safety even in a moderate wind. The true position of affairs was well summed up in the reply recently made to a member of the Advisory Committee for Aeronautics who inquired when the Barrow airship would be taken out of the shed for the first trip. He was told that "Nobody with the slightest sense would expect a 512 feet airship to be taken out in the worst months of the year on her first trials. The trials will be undertaken when the winter weather breaks." The

*Times* correspondent adds: "Although indefinite, this is about all that can be said with certainty." We trust that, after this announcement, our enemies will kindly abstain from attacking us during the winter months. During these worst months of the year, however, numbers of aeroplanes have been making their trial flights and practising at the various flying grounds throughout the country, especially at Brooklands. Aeroplanes can therefore, even in their present stage of development, fly in weather that dirigibles seldom venture to face.

### RELATIVE FIGHTING VALUE OF DIRIGIBLES AND AEROPLANES

As regards the relative speeds of the two kinds of craft there is no doubt that aeroplanes can be propelled at such a rate that they could easily overtake the swiftest dirigible. Not only can they overtake it, but they can without difficulty rise above it and, in that position, could destroy it without themselves being exposed to any appreciable danger. With so helpless and fragile an enemy lying beneath him the airman need not be particular in his choice of the numerous methods of destruction that are available. A simple missile thrown by hand from a sufficient height would suffice to pierce the fabric of the balloon; for instance, a bullet dropped from a height of 3,000 feet would acquire a velocity of about 450 feet per second. But perhaps the most effective missiles would be small bombs provided with contact ignition. A charge of half an ounce of blasting gelatine will tear a hole more than a foot in diameter in balloon fabric under moderate tension; but nitro-glycerine would be preferable as an explosive, because the larger proportion of oxygen in its products of combustion would more readily ignite the gas in the balloon. The construction of such bombs is easy, but they would be quite different from those now in use. As they are not discharged from a gun the contact fuzes may be very sensitive and a simple ribbon or streamer attached to the upper end of the missile ensures a straight fall. With a self-opening tin, half a pint of petrol and a box of safety matches, any aeroplanist can improvise a projectile that would put an end to a dirigible in a few minutes. Strong acids that would rapidly destroy the balloon fabric would cause a certain, if less sudden, collapse.

### DEFENCE AGAINST AEROPLANES

While there appears to be no reasonable doubt that aeroplanes can protect us from dirigibles, the more serious question arises: How are we to protect ourselves from aeroplanes? As they can rise beyond any serious danger from artillery it is obvious that we must adopt what is at present the sole means of pursuit available, namely, other aeroplanes. The position as it now stands, therefore, seems to be that aeroplanes of the highest speed and efficiency are the best means of both attack

and defence. Probably nothing can prevent aeroplanes or even dirigibles at night from entering British territory; but a fleet of aeroplanes on our frontiers, combined with an efficient telephone service, would effectually prevent the repatriation of any of these undesirable immigrants.

### EMPLOYMENT OF AERIAL CRAFT IN BATTLES

As to the use to be made of aerial craft in the battles of the future I feel much diffidence in speaking in the presence of so many experts in the art of war. Generally, however, they will have to descend within rifle range if they are to be of any practical use in active combat. The difficulty of hitting a rapidly moving object at an unknown distance will be their chief defence; but an aeronaut would have an even greater difficulty in hitting anything, and even a machine-gun mounted upon an aeroplane would probably do less damage than if fired at ground level.

### ANTI-BALLOON ARTILLERY

Foreign nations have for some time directed their attention to the subject of artillery for use against aerial enemies. The firm of Krupp, especially, has produced several guns for this purpose. During the siege of Paris, Krupp constructed a special gun for attacking balloons; this may now be seen in the Berlin arsenal. As soon as it was brought into use, however, the French escaped any possible danger from it by sending off their balloons in the night. The diameter of the French balloons was known to the Germans and, with the aid of a special telescope, the distance could be calculated. The head of a human being affords an approximate measure that may also be used for range-finding. In those days the Germans obtained their first balloons from England, Coxwell going out with them to instruct the aeronauts in their use.

Krupp's 7.5-cm. gun has seats for five men, and storage for 62 shells. It is mounted on a car which weighs 4,300 kilogrammes (4 tons), the weight of the gun alone being 1,065 kilogrammes (21 cwt.). Each projectile weighs 5.5 kilogrammes (12 lb. 2 oz.), and the horizontal range is given as 9 kilometres (9,900 yards). The vertical range is 6,300 metres (6,930 yards). A lighter gun of 6.5-cm. gauge weighs with car 875 kilogrammes (17 cwt.), the gun weighing 352 kilogrammes (7 cwt.). Each projectile weighs 4 kilogrammes (8 lb. 13 oz.), and the extreme horizontal range is stated to be 8,650 metres (9,450 yards). The height of fire obtainable is 5,700 metres (18,700 feet). The initial velocity of the projectile is 620 metres (2,034 feet) per second. A coiled spring balances the weight of the gun when pointed above the horizontal.

For naval purposes Krupp has constructed a 10.5-cm. gun weighing 3,500 kilogrammes (69 cwt.) with carriage. The pro-

jectile weighs 18 kilogrammes (40 lb.). The muzzle velocity is 2,100 feet per second, and the shells discharge a train of smoke to facilitate aiming.

Ehrhardt, at Düsseldorf, has also built a special gun for use against aerial craft. Its bore is 5-cm. and its barrel is 30 calibres long, while the length of the Krupp barrels is 35 calibres. The weight of the Ehrhardt gun alone is 400 kilogrammes (7.8 cwt.); with car, ammunition and five men the weight is 3,200 kilogrammes (63 cwt.).

The French have also been busy in the same direction, and the French army has guns especially made for use against balloons or aeroplanes. At the present moment there is in Paris a Voisin biplane carrying a small quick-firing gun; but it does not yet appear to have been put to a practical test. Le Creusot have made trials with a new 305-mm. gun, 39 feet long, firing a shell weighing 2 cwt. to a distance of 18 miles.

So far the effects of artillery fire against balloons have been disappointing. Captive balloons which wait patiently until they are hit have indeed been brought down; but, even if hit, they are not necessarily placed *hors de combat*. Colonel F. C. Trollope mentions that only one case occurred of a balloon being hit during the Boer war. A shrapnel shell, fired at a range of about 600 yards, burst in front of it and made 68 holes; but the balloon took twenty minutes to come down and was subsequently mended.

A new form of the old chain shot might be used against aerial craft with advantage. If the shrapnel balls were made in two halves, these halves being joined by steel wire coiled up inside them, then the damage done to a balloon or aeroplane would be considerably greater than with the present projectiles.

We have still much to learn as to the damage which the pressure of an adjoining explosion might cause to a balloon. In the case of a spherical balloon, not very tightly distended, the structural injury caused by air pressure would probably be much less than in the case of a dirigible which has to be rigid in order to steer. With an aeroplane, a side blast would be more dangerous than a rising or falling rush of air.

On these and many other points experiments should be made, and the nation that makes them first will be in the best position for utilising aerial craft as a means of offence or defence.

THE CHAIRMAN (SIR ANDREW NOBLE, BART., K.C.B.). Gentlemen.—We have had the pleasure of listening to a most important and interesting lecture upon a most important and interesting subject, and it now becomes my duty to invite you to take part in a discussion on it. But before you discuss the paper, I would venture to draw your attention to one or two points on which I think it would be of the greatest advantage to obtain the views of the members. Those points are:—First, the effect of balloons against towns, whether fortified or otherwise; secondly, what is the possibility, considering the ignorance of the aeronaut, both of the exact height and of the exact velocity with which he is moving, of his

hitting any desired object; thirdly, what weight of shell can be carried, and if dropped from a very considerable height, what effect will such a shell have? The difficulty of hitting any particular object would, I think, be considerable; but in discussing the very important subject, which has been so well brought before us to-day, it is very important indeed that we should hear the views of experts upon it. It is my duty to ask you that the questions I have mentioned shall be raised in the course of the discussion.

COLONEL FRANCIS G. STONE, R.A.: This is not the first time I have had the pleasure of listening to Mr. Reid, and as usual I have learned a great deal from him. With regard to the division of the subject which the Chairman has asked us to devote our attention to, I should say myself, with regard to the effect of high explosives, that, no matter whether they are discharged from dirigibles or aeroplanes or anything else, I entirely agree with Mr. Reid that the effect of all high explosives hitherto has been extremely disappointing, even to their most sanguine supporters.

BOMB DROPPING

The effect is intensely local. There have been one or two experiments made quite recently which promised to give us an enhanced effect from high explosives; but the question is only at present in its infancy, and I cannot say any more about it. I do not suppose, however, it will revolutionize warfare in any way. With regard to the chances of hitting, speaking as a gunner, I know pretty well what the difficulties are of hitting anything, even under the most favourable conditions, on land and on sea. The difficulties of hitting anything from a moving platform in the air, at an uncertain distance from the target, must undoubtedly be infinitely greater; and, although I shall have something to say later on about specific targets, I must say I have very little faith in anything like wholesale successful practice from the air upon enemies upon the earth. I think the useful limitations of such practice will be very restricted, and a little later on I shall suggest what those restrictions will probably be. With regard to the weight of shell and the effect, I think there are so many considerations against the discharge of heavy bombs from aeroplanes, that, at present, we need hardly consider the question as within the realm of practical politics. With regard to the discharge of heavy bombs from dirigibles, calculations can very easily be made as to the useful loading which any dirigible in existence can carry, and, I think, speaking quite roughly from memory, one may take it as a useful guide that a dirigible with 500,000 cubic feet capacity could very easily, in addition to its ordinary load, carry high explosives, for the purpose of discharging them, to the amount of at least 1,500 lb. I think that is a very conservative estimate indeed. As the Lecturer pointed out, the discharge of a bomb, as such, will not be so efficacious as that of a shell which, in itself, has high penetrating power, owing to its velocity. The effects produced by the Russian shells and also by the Japanese shells, notwithstanding the penetrating power they possessed through being discharged from guns or howitzers, were extremely disappointing to all concerned. The examination of the Russian ships, which were struck in the harbour at Port Arthur by the shells from the 13.5-inch Japanese mortars, showed that the effect had been very much smaller than had been anticipated, and it is very doubtful whether the actual sinking of any ship was due to that cause

### THE HAGUE CONVENTION

There are one or two points which I should like, if time allows, to refer to, in addition to the three which the Chairman has put before us; and the first is with regard to the Convention agreed to at the Hague Conference of 1907. I was not able to get a copy of the Lecture before it was read this afternoon, so I did not come prepared with any data, but, speaking from memory, I think that article 25 of Convention 6 laid down absolutely that the discharge of explosives against undefended towns or villages or localities, by any means whatsoever, was prohibited. The history of that particular Convention was that at the previous Hague Conference the discharge of high explosives, or explosives of any kind from airships, was prohibited, but all the Powers did not agree. Great Britain agreed, but I do not think the United States agreed, and there was one other Power which did not agree. At the next Conference, held in 1907, the question came up again, and it was generally recognized that it was not fair to expect occupants of a dirigible to refrain from retaliation if they were attacked, as naturally they would be attacked. If you were using a dirigible for the purpose of strategical reconnaissance, even though you might not be using it for any deadly purpose, it would naturally be attacked if the enemy had the means of attacking it; and it was generally agreed by the representatives of the Powers that to prohibit the discharge of particular projectiles from a dirigible under such conditions would be ridiculous. Still, at the same time, the Powers wished to keep the discharge of explosives from dirigibles within the limitations of civilized warfare; in other words, they wanted to restrict it absolutely within the same limitations as bombardment from ships or bombardment from guns on shore; and the custom of war, long before the Hague Conference started, as everybody knows, was that undefended towns should not be bombarded without due warning being given. A warning would be given if the town resisted an attack, in which case it would cease to be an undefended town, so that the whole point I wish to bring out is that the discharge of bombs, or any kind of explosives, from dirigibles or aeroplanes is under precisely the same limitations as the discharge of explosives from guns on shore or from guns on ships; and the hysterical effusions which, I am sorry to say, one has not only read in the Press and in light literature, but has also heard from a great many people who might have considered more deeply before they spoke—with regard to an enemy's dirigibles coming and laying our towns waste, creating panics in Fleet Street, and playing general havoc with the whole of our complex civilized organism—should, I think, once and for all be dispelled from the public mind, and I am very glad the Lecturer has given me the opportunity of bringing that point forward.

### USE OF DIRIGIBLES BY NIGHT

Then again, with regard to the difficulty of navigation, and of finding your way about by night in a dirigible, I have no personal experience of doing it, but very experienced officers—of whom I will quote two, Colonel Capper and Captain King, both of the Balloon School, who have spoken on the subject—have said that, given a certain amount of previous reconnaissance, they were both surprised at the facility with which they could find their way about at night, the accuracy with which they could read properly prepared maps, and find their way by that aid from point to

point. I think any objective which is likely to be attacked by a dirigible at night would be of such a conspicuous nature—in other words, the objective would be something, we will say, in a dockyard or a harbour—that a proper reconnaissance by any hostile power should make it quite an easy matter for the dirigible to find its way. I think the Lecturer has conveyed the idea that that is rather more difficult than it really is. The great point in favour of the dirigible at night is that the lower down it is on the horizon the more difficult it is to detect, and therefore the nearer it can get to its target before it is seen, which I think is a very important point. It appears to me to be quite a feasible mode of attack for a dirigible, having previously reconnoitred the position with the greatest care, to come up wind in the evening, and, after taking up its station with the greatest care, come down wind at night without using its propellers, so as not to attract attention, until it has got as near as it can by those means to its objective, which we will say, for the sake of example, is a dockyard. By the time it had to use its propellers in order to correct its position with a view to discharging its missiles, it appears to me quite possible that it would be able to effect its object before it could be interfered with. It is customary in discussing this question to lose sight altogether of the fact that no dirigible will venture to attack in daylight—at least I should think not. As the Lecturer has said, an aeroplane would very soon knock it out; but the discussion on how such an attack is to be prevented by night has been extremely meagre on every occasion on which I have heard the question raised. Perhaps the Lecturer could throw out a suggestion as to how such an attack should be made, if he thinks it is feasible. I do not see any difficulty whatever in meeting an attack by daylight by retaliating by means of aeroplanes.

Captain J. Burke, Royal Irish Regiment:—I have lately had the opportunity of visiting France, and discussing with officers of the French army the question of the use of aerial craft in warfare, and I should like this afternoon to hear what the opinion of the Lecturer is on the subject.

### THE TACTICAL RÔLE OF THE AEROPLANE

The opinion of French officers, quite openly expressed to me, was that as a means of offence the aeroplane, in the stage it has reached at present, is not worth the trouble and expense it costs. They consider, however, that it is all-important for scouting purposes. General Bonnal has written an article in which he says that the advent of the aeroplane has distinctly altered modern warfare; and he gives the great weight of his opinion to the statement that the aeroplane has made the difficulties of a general far greater than they hitherto have been. The French have, therefore, decided, so far as one can judge by what they say and have done, not to worry about organizing for attack by means of aeroplanes on armed forces, but to organize aeroplanes as a means of reconnaissance. They are at the present moment thinking how aeroplanes should defend themselves against kindred craft, that is, other creatures of the air. If it is possible to use explosives and fight from an aeroplane you will have to organize for a dual objective; and therefore I would like to ask whether it is the Lecturer's opinion, and the opinion of other experts in this country, that we should organize with a dual objective, that is, organize aeroplanes for scouting, and organize them as a weapon of attack. Only a certain amount of money will be expended on aerial craft, and the question we have therefore to consider

is: Will it pay for us to renounce the great advantage of scouting which, it is now considered on the Continent, can be gained by the use of aeroplanes, by attempting to organize these craft for attack as well as for reconnaissance? We have been shown on the screen some very interesting photographs of guns specially designed for attacking air-vessels. I was at Mourmélon during November and December, and was almost every day in what corresponds to the officers' waiting-room of the French air corps at Farman's works, and I noticed that the aim of the French officers is to endeavour to practise flying every day at a height of 2,000 feet. I must say that they did it perfectly, because, during the whole of the time I was there, there was only one day on which there was no flying. This was in November and December, and the weather was awful, but they went out whenever they could get a moment, and there was not a day, except one, when they were not out for half an hour. They always flew at a height of 2,000 feet, because they consider that at that height the risks of a direct hit are very small. There is a point that I have since thought of that I did not discuss with them, namely: Is it possible by means of the detonation of a bursting shell to cause such a disturbance of the air as to upset the airman? Personally I do not know anything about explosives, but I would far rather risk a direct hit from any weapon, while flying, than risk a disturbance of the air caused by the bursting of a shell. Therefore I ask the second question: Is it possible to cause an explosive to explode in the air in such a way as to make a disturbance sufficient to upset the aeroplane? Then there is a point which has not hitherto cropped up which has impressed me very much. We are inclined only to consider operations in England, in connection with air work; but we do not hope ever to fight in England; we hope to fight on the Continent.

### AEROPLANES IN SAVAGE WARFARE

It has also to be borne in mind that the British army, more frequently than not, fights against savages. Therefore I should like to ask the question with regard to aerial combats with the aeroplane: Would it be possible for our aeroplanes to come close down upon some body of ill-armed natives and attack them with explosives? Take Northern Nigeria, for example, where they have a terror still in the shape of a Mahdi. The people there are poorly armed and are very fanatical, and would not the great moral effect of a bomb coming from an aeroplane make it worth while to try it on them? I think it might be advisable to send an aeroplane out there. I put that forward, because I happen to have been in Northern Nigeria, and I know that the climatic conditions there are very good for flying, and there is the possibility of a Mahdi rising up at any time. Then the Lecturer mentioned the fact that the Viosin has a machine-gun mounted on it.

### MACHINE GUNS ON AEROPLANES

I do not think the Voisin has ever fired that gun, in fact I am practically certain that it has not, for the good and excellent reason that, with a machine-gun, you have to get rid of your empty cartridge cases. In the Voisin the propeller is behind the man, and the cartridge cases would go straight into the propeller, and would break it (a cap blown into an ordinary wooden propeller will break it). There is that difficulty to contend with; in fact I do not think firing a gun is feasible from an aeroplane. To repeat, the questions I would like to ask are: (1) Is it worth while

to try and organise our aeroplanes for a dual objective, that is, scouting and attacking? (2) Is it possible to upset an aeroplane by detonating some explosive in the air within a certain radius of it? and (3) Should we not consider the question of utilizing the aeroplane in our wars against savages in different parts of the Empire?

Mr. WALTER F. REID, in reply, said:—I should like to thank Colonel Stone for the information he has given on this occasion, as he did on the previous occasion on which this subject was discussed. Being in a very responsible command, Colonel Stone has the opportunity of seeing things and learning things that are denied to a civilian; and I am sure it was very good of him to give us so much fuller information about this Convention than anything I could tell you. So far as I understand his remarks we are in this position, that we are not supposed to shower down explosives on persons who are not combatants, or upon towns that are undefended, and there is now no undertaking by any of the Powers that explosives shall not be sent down from aeroplanes or aerial craft of any kind. I believe the first point that I mentioned in my paper was that no explosives of any kind should be sent down from aerial craft.

### USE OF AIRCRAFT BY NIGHT

I venture still to differ a little from Colonel Stone's view with regard to attacks by dirigibles at night. A stranger coming over here, unless he has had previous opportunities of scouting, would, even with a map, be a little bit at sea as to the towns or buildings that were passed over. He would not himself be detected so soon if he flew low—that is quite true; but on the other hand, he would much more rapidly approach the spot that he wished to attack, and would pass it quickly. Colonel Stone has mentioned one point which I omitted to refer to in my paper, namely, that the noise of a propeller of an aeroplane will, even in the dark, give you a very good notice of its arrival. We have had some most interesting information given us by Captain Burke of the work that has been done in France. The French are undoubtedly very strenuous in their studies, and they are doing very good work. No doubt many of our own officers have become qualified as experts and are quite able to work an aeroplane, but I am afraid they do not obtain the same facilities from the War Office as the French Government give their officers. I think 2,000 feet is a very safe height at which to fly; you are not very likely to be hit under such conditions. I would not mind taking the chance myself at 2,000 feet. Captain Burke asked three questions, the first of which dealt with the utility of organizing for scouting purposes. There can be no question at all about the advisability of doing that. Whatever views may prevail as to aeroplanes from the point of view of aggressive tactics, there can be no doubt at all as to their utility for going over the ground, and for taking photographs, or taking notes of what the aeronaut sees. Therefore for scouting purposes they should be organized, and at the earliest possible moment.

### EFFECT OF EXPLOSIONS ON AEROPLANES

Then with regard to Captain Burke's question as to the action of an explosive in upsetting an aeroplane, from the very nature of things we have not yet built an aeroplane that will be stable without a human being in it, although we are already progressing rapidly towards auto-

matic stability. Some very interesting experiments have been made in that direction, and before very long it may be possible for us to have an aeroplane flying through the air without a human being in it; then we can make actual experiments as to what happens to the aeroplane while it is flying through the air when an explosive bursts close to it. My own opinion is that if you detonate sufficient explosive on the ground the current of air that would be driven upwards would be enormous, and I should not like to be in an aeroplane that was moving in the air over that spot. But the difficulty is in doing it. Major Baden Powell, I think, suggested that plan when I last read a paper on a similar subject—that the explosion of a mass of explosive on the ground would create such a turbulent mass of air moving upwards that an aeroplane might be upset. Captain Cody, who was in the room at the time said, with his usual intrepidity, that if anyone would detonate a charge of 100 lb. of gun cotton on the ground he would be very pleased to fly over it. That shows his courage, but I do not think it proves the point.

### MORAL EFFECT

Next with regard to moral effect. Moral effect is good as long as it lasts, if you do not presume upon it too much. You will remember what took place during the siege of Mafeking, where the ladies used to sit out in the streets doing their needlework, with a bomb-proof shelter close at hand, and when the signal was given that the Long Tom had been discharged they all popped into the bomb-proof shelter; and as soon as the shell had exploded, they came out again and went on with their work. As I say, moral effect is good as long as it lasts. The French had a very interesting experience in Morocco. They brought a captive balloon over there, and the Arabs when they saw it simply ran away. They said, "If Allah allows these infidels to pitch their tents in the skies it is no good us fighting against them." But when they came, within two or three weeks, to find out what it was, they used to keep a look-out for the balloon to find out where the French position was, so the French packed up their balloon and sent it back home again, especially as it was not very much good in fighting against such a disorganized rabble as they had to contend against. The moral effect was great at the beginning, but it was lost afterwards. I quite agree with the view Captain Burke expressed about the gun on the Voisin aeroplane. I mentioned in my paper that I had not heard of it having been tried. I did not like to infer that it was a useless thing, but reasons have been given to-day why its efficiency at any rate cannot be very great. Sir Andrew Noble asked what was the weight of the shell that could be discharged from an aeroplane. Quite recently some most marvellous things have been done with aeroplanes. For instance, an aeroplane that was supposed to carry only one passenger has gone up with two or three. Perhaps you have seen illustrations in the papers of some flights made by Cody, in which you have noticed that a man is standing right out on one of the spars of the aeroplane on one side, showing that the balance can be kept very well indeed on an aeroplane. Therefore I think that an aeroplane could carry a charge of explosive—in fact it is almost demonstrated that it can by actual tests—if it were suspended as near as possible in the centre of gravity—of some 200 or 300 lb. at least. With regard to the weight of explosive that can be carried in a dirigible and dropped; if a charge of about 1,000 lb. were dropped from a dirigible I should be very sorry

indeed to be in that dirigible. First of all, you have to keep your balance, and that is a very critical thing to do. The dirigible is balanced at the start with that weight of 1,000 lb. If you have the weight precisely in the centre of gravity, what would happen would be this: the balloon, when such an enormous weight was released from it, would shoot upwards, and a body of that shape will invariably go point first. A dirigible would almost certainly capsize. I should not like to discharge suddenly a weight of anything more than, say, 100 lb. from a dirigible. Even that might be dangerous to those who were undertaking it.

I would like, before sitting down, to thank you, Sir, very much indeed for having come all the way from Newcastle to preside over this meeting. It is not the first service of this kind you have rendered to us by any means.

THE CHAIRMAN (SIR A. NOBLE, BART., K.C.B.):—Ladies and Gentlemen,—It is my duty now to propose a special vote of thanks to Mr. Reid for the most important and most interesting Lecture he has given us to-day. The question of the weight of the shell which can be carried is one on which a great deal of information is required; while another point of some importance is the mode of ensuring that the projectile shall explode when it strikes the ground. It is not like something fired from a rifled gun, because you do not know how it may hit the ground. In that case you could not very well tell whether the fuse, unless it was a specially designed fuse, would explode immediately or not. That is a subject that should be very carefully considered. At present the opinion is very much that which is given in France, among other countries, namely, that it may be a cause of much annoyance but it would not be exceedingly serious unless the point to which I have alluded was complied with. I think this is a matter of very considerable importance that should be properly studied. I only regret that I did not think of bringing with me a diagram, which I had made some considerable time ago, showing the position of dirigibles at various heights, and the elevations necessary to hit them. I should say, speaking roughly, that it is a waste of ammunition to fire at balloons, at an unknown height, at angles of between, I will say, 65 and 90 degrees. The chances of your doing any good are practically nil; but at angles considerably less than those the chances of hitting are very great indeed. I can only express our great thanks to Mr. Reid for the most interesting Lecture which he has given us to-day.

# BALLAD POETRY OF THE SEA.

By Lieutenant Julian Tenison, R.N.

Though it would be natural for English poetry to be rich in allusions to the sea, our greatest poets, with the notable exception of Swinburne, who stands pre-eminent as the laureate of that restless, changeless element, have not been over-generous in their celebrations of its beauties. True, we have Tennyson's immortal "Revenge," and Byron's grandiloquent panegyric of the "dark blue sea" in "Childe Harold's Pilgrimage," but the wealth of sea poetry has been given us by the ballad-makers, many of whom have remained anonymous. Some of their best productions deal with sea-fights, and perhaps the finest of them all is the heroic story of Sir Andrew Barton, that celebrated Scottish captain, who, in the sixteenth century, plundered all fat and prosperous merchant ships that came his way. As he had letters of marque against the Portugese, and on the strength of them plundered any rich trader regardless of the flag she sailed under, he was little better than a pirate; but his end was magnificent. Typical as it is of the spirit which has animated our sailors from all time, we cannot fail to admire his exhortation to his men when he is mortally wounded in the action against the ships fitted out for his capture by King Henry VIII.

> Fight on, my men,' Sir Andrew sayes,
> ' A little Ime hurt, but yett not slaine;
> Ile but lye down and bleede a while
> And then Ile rise and fight again.
> 'Fight on, my men,' Sir Andrew sayes,
> 'And never flinshe before the foe;
> And stand fast by St. Andrewe's crosse
> Untill you heare my whistle blow.' "

He then dies silently; and his men continue the fight, waiting for the whistle which he can never blow, until at last their ship is boarded and taken by their opponents.

The Spanish wars of the Elizabethan period inspired a number of these heroic ballads, such as "The Winning of Cales," which tells of the attack of Lord Howard and the Earl of Essex on Cadiz in 1596.

> "Long the proud Spaniards had vaunted to conquer us,
> Threatening our country with fyer and sword,
> Often preparing their navy most sumptuous
> With as great plenty as Spain could afford.
> Dub a dub, dub a dub, thus strikes their drums:
> Tantara, tantara, the Englishman comes."

The swaggering refrain is repeated at the end of each verse. In its clumsy language the ballad gives a vivid description of the panic in the town on the appearance of the English; the

action is but shortly sketched, and it is the plunder that seems most appreciated:—

"Entering the houses then, of the most richest men,
For gold and treasure we searched eche day:—"

Evidently our anonymous author was one of the seamen or soldiers of the expedition, and enriched himself at the expense of the inhabitants. What an alluring picture he draws:—

"Full of rich merchandize, every shop catched our eyes,
Damasks and sattens and velvets full fayre;
Which soldiers measured out by the length of their swords,
Of all commodities eche had a share."

Another ballad of the same period is "The taking of Cartagena," by Thomas Greepe, in which the Spaniards are shown in full retreat before Drake's onslaught:—

"And as they fled, strange news they tell:
These be not men, but fiends of Hell.'"

The wars of the seventeenth and eighteenth centuries were celebrated in braggadocio rhymes of slender merit, the Restoration period producing little nautical verse deserving of remembrance, except the courtly Dorset's song at sea "To all you Ladies now on land," which is graceful and polished, but is the poem of a landsman who wishes himself ashore.

"For though the Muses should prove kind
And fill our empty brain,
Yet if rough Neptune rouse the wind
To wave the azure main,
Our paper, pen, and ink, and we,
Roll up and down our ships at sea."

The tears of the unhappy gallants exiled on the ocean causing high tides at Whitehall is a pretty conceit, and the poem abounds with smooth and well-turned compliments, as when it says of the enemy:—

". . . . what resistance can they find
From men who've left their hearts behind?"

But my Lord Dorset and his fellow wits were obviously better qualified to sing the praises of the ladies they had left behind than to be laureates of the boisterous sea on which they were so ill at ease.

Most of the foregoing verses—be they Elizabethan or Carolian—celebrate the sea wars rather than the sea itself; but there is another type of ballad poetry in which the sea is made the scene of supernatural demonstrations such as the "Flying Dutchman." Many of these poems are gruesome and uncanny in the extreme, dealing as they do with sea monsters and spirits which assume the outward appearance of handsome men, and in this guise woo and win fair maidens of the land. Then, carrying their victims far out on the ocean, they reveal the grisly forms and cruel natures hitherto magically concealed, and the too trusting damsels are destroyed to the accompani-

ment of raging tempests. Such ballads abound in words strong in expression of the ghastly and terrible; in one we read of a "grumly beast"; and in the "Daemon Lover," at the point where the spirit resumes his own monstrous and revolting form,

> ". . . grim, grim grew his countenance
> And *gurly* grew the sea."

This is a word which at once brings before our eyes the grimness of the scene, the swirl and the gnarled broken appearance of the water, and we see vividly the horror of the woman going to her death

> ". . . . where the white lilies grow
> In the bottom of the sea."

"Gurly grew the sea," too, in "Sir Patrick Spens," a ballad which is remarkable as giving an early example of the use of a device common in the modern man-of-war. To stop the rent in the vessel's side, Sir Patrick orders his men to

> "Gae fetch a web o' the silken claith,
> Anither o' the twine,
> And wap them into our gude ship's side
> And letna the sea come in."

This is on the same principle as the modern collision mat—a piece of canvas stitched with oakum, placed in case of emergency over a hole in the hull to keep out the water. Unfortunately for Sir Patrick it proved ineffective:

> "O laith, laith were our gude Scots lords
> To weet their cork-heeled shoon,
> But lang ere a' the play was played
> They wat their hats abune.
>
> And mony was the feather-bed
> That fluttered on the faem,
> And mony was the gude Scots lord
> That never mair came hame."

Not only must the sailor face the fury of the elements, but there were syrens, mermaids, and ghoulish spirits to lure him to destruction. Yet Coleridge's "Rime of the Ancient Mariner" is unnecessarily and inconsistently supernatural, and suggests actual ignorance of the sea. As to the love ballads, it is striking that they nearly always end with storm, death, and disaster; and it is the cruel rather than the beautiful aspect of the sea that seems to have inspired these old singers, who show the same hatred and fear of its terrors which possessed the ancient Greeks, and led Archias of Byzantium to write his Sea Dirge—the complaint of some hapless voyager who, dashed to pieces on a rocky promontory, is laid to rest

> "Within the hateful hearing of the deep."

The writers of the love ballads draw pretty pictures of "bonny ships" that might grace a fairy tale—ships whose

> ". . . . masts were of the good red gold,
> The sails of cramoisie."

Here is a dainty vessel, fit to sail enchanted seas:—

"The sides were of the good stout oak,
The deck of mountain pine,
The anchor of the silver sheen,
With ropes of silken twine."

Alas, what a downfall from this vision of loveliness to the cargo steamer of to-day, with her clumsy lines, grimy funnel, and rust-stained iron hull.

Many ballads have been sung in praise of piracy, but few are of great worth, except Charles Kingsley's spirited "Last Buccaneer," with its description of the "pleasant Isle of Avès"—

"Oh, sweet it was in Avès to hear the landward breeze,
A-swing with good tobacco in a net between the trees,
With a negro lass to fan you, while you listened to the roar
Of the breakers on the reef outside, that never touched the shore."

With what regret and longing did the broken old pirate, begging his bread in the streets of Bristol, look back upon the happy West Indian island and his fierce days upon the Spanish Main.

There have been poets in modern times who have sung of the horror, the cruelty, the grandeur, and the fascination of the sea, but it is curious that so few sailors have done so. Sea verse has almost always been written by landsmen, and often by those who have scarcely ever seen the sea, except from the shore. Falconer, however, was a sailor, and although his once famous but now neglected "Shipwreck" gives descriptions of voyage and storm, interlarded with admirable professional precepts, he shows us only the discomforts and dangers of the sea; and if he occasionally pauses to admire some seascape, he soon ruffles the surface of the water, clouds the sky, and turns his pleasant picture into one of horror. Captain Marryat has occasionally broken into verse, but most sailors of the present day cannot or will not put their intimate knowledge of the sea into words, and the efforts that come from the shore are not always satisfactory. The sentimental and idealised poems of Dibdin have no genuine "smack o' the sea" about them, while "Black-eyed Susan" teems with technical absurdities. On the other hand, no sailor can fail to appreciate Mr. Henry Newbolt's ballads of "Admiral Death" and "Drake's Drum." The former is the grim superior officer of all mankind.

"He's sailed in a hundred builds o' boat
He's fought in a thousand kinds o' coat
He's the senior flag of all that float
And his name's Admiral Death."

And what spirit and confidence there are in the fine lines of the latter—Drake's last words:—

"Take my drum to England, hang et by the shore,
Strike et when your powder's running low;
If the Dons sight Devon, I'll quit the port of Heaven
An' drum them up the channel as we drummed them long ago."

Mr. Kipling occasionally grapples with the sea in what may be called tramp-steamer verse, suggestive of oil, coaldust, and ugliness. It is realistic enough perhaps, and reveals a certain knowledge of the subject, but it misses the true poetry of the sea, although some of his ballads—such as that of the "Bolivar"—have a certain rough bravado that is not without its charm.

The Merchant Service has provided one notable exception to the general reticence of seafarers, and all sailors who have read Mr. John Masefield's "Salt Water Ballads"—or, indeed, any of his admirable sea poems—will realise that here at last is the real thing. Here is no idealised view of the ocean through a landsman's eyes, here are no mock heroics, no false sentiment expressed in ladylike language; it is the sea itself that we find in the pages of this book. Take, for example, the comments of the crew on their dead messmate:—

"'Bill, e's dead,' was all they said
'E's dead, an' there 'e lies.'"

What a contrast to the tearful rhapsodies of Dibdin's tars! One feels that it is exactly what rough sailors, a silent race not in the habit of expressing their emotions in high-flown language, would have said in the circumstances.

From a later book of ballads we get "Port of Holy Peter," with its simple yet vivid description:—

"All the day the wind's blowing
From the sick swamp below the hills,
All the night the plague's growing,
And the dawn brings the fever chills,
In Spanish port,
Fever port,
Port of Holy Peter."

Even if we have never seen such a spot, the vision of it rises before us. Indeed, so many of the ballads are striking, that it is difficult to select examples.

In recent years the Royal Navy has produced no poet except Mr. G. S. Bowles, the best of whose verses is "Raggies," the lament of a bluejacket over his friend who has been killed during an evolution. For the benefit of the landsmen, it should be explained that when two seamen are inseparable friends, they usually keep their brass-cleaning rags together, hence the name, which has the same significance as the colloquial "*pals*" on shore. Mr. Bowles skilfully sketches the rough yet very real grief of the ingenuous A.B.

In humorous verse the sea has received such attention from Sir W. S. Gilbert that it is impossible to refrain from mentioning the immortal "Bab Ballads." Most of us know and have delighted in Captain Reece, Captain Capel Cleggs, and the host of entertaining mariners who pass with their exaggerated sea roll through his pages. The majority of the nautical ballads refer to the Navy. One of them—that of Sir Blennerhasset

Portico—despite its burlesque tone, reminds us of certain estimable officers whose anxious care for trivial matters renders their lives a burden to themselves and all those who serve under them.

> "A captain in the Navy, he—
> A Baronet and K.C.B.,"

who, admiring Rodney, and wishing to ape him in every detail, is more concerned about the fitting of a "mystic selvagee" than any other matter in the conduct of his ship. Memorable also are Lieutenant Belaye and Sir Berkely. It was Lieutenant Belaye who took such pride in his ship's armament; he

> ". . . . commanded the gunboat 'Hot Cross Bun,'
> She was seven and thirty feet in length, and she carried a gun."

Sir Berkely was the terrible martinet who relieved Captain Reece of his command. How different he was to that admirable officer, under whose rule

> "A feather bed had every man.
> Warm slippers and hot water can,
> Brown Windsor from the Captain's store,
> A valet, too, to every four."

What a picture is drawn of Sir Berkely's brutalities:—

> "He stopped all songs at 12 p.m.,
> Stopped hornpipes when at sea,
> And swore his cot (or bunk) should not
> Be used by aught than he."

Can one wonder that this outrageous harshness caused a mutiny?

The Merchant Service, too, comes in for a share of the fun, and there is a hit at that absurd professional jealousy which so long existed between it and the Navy. When the Bishop of Rum-ti-foo returns to his See after a long absence, he finds a sad deterioration in the morals of the black inhabitants:—

> "Some sailors, whom he did not know,
> Had landed there not long ago,
> And taught them 'Bother!' also 'blow!'
> (Of wickedness the germs).
> No need to use a casuist's pen
> To prove that they were merchantmen;
> No sailor of the Royal N.
> Would use such awful terms."

Two more types of sea ballads remain—the Chanties and runaway choruses of the Merchant Service, and the gunroom songs of the Navy. The former stand by themselves, and consist roughly of a solo line and chorus, from the measure of which the men take the time to haul. Some of them are very inspiring. Some are mere repetitions, slightly varied, of the same two or three lines, as:—

> "Haul upon the bowline, the fore and main top bowline
> Haul upon the bowline, the bowline haul."

These two lines—the first solo and the next chorus—are repeated

twice, and in subsequent verses for "the fore and main top bowline" are substituted "so early in the morning," or almost any phrase that the singer chooses. All the chanties are on the same principle, though the metre and time vary according to the nature of the hauling—there are capstan chanties, halliard chanties, and furling chanties. Some, such as "Rio Grande," "Whisky Johnny," and "Blow the man down," are fairly well known outside the Merchant Service, and are often sung in gunrooms of men-of-war. The runaway chorus, as its name implies, is used by the men manning a rope led along the deck, and "running away" with it, its words giving time for the stamp of their feet in the same way that a band or bugle does in the Navy.

In warships' messes, one of the most popular songs is "Farewell and adieu," which describes a fleet in the days of sail of the line, leaving Spain and proceeding up Channel, finally anchoring in the Downs. It is always sung when a ship is sailing for home. But alas! few of the songs of the gunroom will bear repetition. In a ship in which the writer once served, the midshipmen used to sing a topical alphabet which had three versions. One contained most laudable sentiments, and was sung at a public "sing-song" before the Admiral. The second, of a somewhat broader nature, was reserved for occasions on which senior officers were present as guests in the gunroom; while the third, produced before members of the mess alone, was of a positively libellous character, and was sung with infinite relish by the juniors.

Though gallant ships and favouring winds offer the fairer prospect, it is in "the slimy bottom of the deep" that the poetic fancy may well seek the elements of song and story. The darkness and silence, the mystery, the fearsome monsters that dwell in the depths, the rotting ribs of the old sunken ships, the bones of the English and Spanish seamen that people the floor of the ocean, with the treasures they fought and died for now lying useless beside them in the ooze, contain the elements of a hundred romances yet to be written—romances of—

> " . . . a thousand fearful wrecks;
> A thousand men that fishes gnawed upon;
> Wedges of gold, great anchors, heaps of pearl,
> Inestimable stores, unvalued jewels—
> All scattered in the bottom of the sea."

Surely the great unchanging ocean which scattered the Invincible Armada, and helped to win for us our right to boast the lordship of its waves should not be execrated by our poets as cruel and treacherous, but rather should be celebrated as an ally, friendly and kind; or, at the worst, let it be considered a quiet resting place for those seamen whom it takes to sleep in its depths until that last day when, as St. John tells us, there shall be no more sea.

# THE ORGANIZATION OF THE BRITISH BOARD OF ADMIRALTY.

Translated from the *Marine Rundschau*, by Colonel H. Wylly, C.B., and published by permission.

## I. ORIGIN AND PRESENT COMPOSITION.

THE system of the British Admiralty is, as Admiral Sir Vesey Hamilton says in his book, "Naval Administration," "no product of the organizing skill of one or more individuals, or of ai single period. It is, if I may be permitted the expression, an organic growth, having its roots far back in mediæval history or earlier, developed under constantly expanding conditions, but owing its special character to the original circumstances out of which it grew."

The control and administration of the Navy, which in early days had appertained to the Crown, were, from the end of the 14th century, by an important and far-reaching transfer of authority and power handed over to certain high dignitaries. Even from the year 1385 we find Lords Admiral of England. From 1407 these dignitaries were entrusted with Letters Patent and bore the title of "Lords Admiral of England, Ireland, Aquitaine and Picardy," and later on were known as "Lords High Admiral." This office has been permanently constituted since the days of Henry VIII., and that monarch conferred upon it in the year 1512 the authority which the Admiralty possesses to this day.

In the 17th century, at the commencement of which the council-system received general acceptance in the English Government, a navy council also began to take the place of personal control, and in 1628 the office of High Admiral was for the first time represented by a commission. At the time of "the Long Parliament"—about 1640—it naturally came about that, in the different administrative departments established by Parliament after the outbreak of the Civil War, responsible ministers were appointed, who, for facilitating the harmonious transaction of business, were organized as councils.

After the Restoration, in 1667, Charles II. established a Committee for Admiralty, Naval, and Military Matters—in addition to other permanent administrative committees of the Privy Council, and in 1690 the Admiralty was permanently composed of a board or council, and this form it has, except during three brief periods, retained up to the present day.

As at present composed under the Orders in Council, dated 10th August, 1904, this board consists of six Commissioners for Executing the Office of Lord High Admiral of the United Kingdom of Great Britain and Ireland (known as "Lord Commissioners"), viz:—

The First Lord of the Admiralty,
The First Sea Lord.
The Second Sea Lord,
The Third Sea Lord, who also is known under the title of Controller of the Navy.
The Fourth Sea Lord.
The Civil Lord.

The parliamentary and financial secretary, and the permanent secretary are also of the governing body of the Board, holding the same independent position without being actually colleagues. The members of the Board are appointed by patent, the wording of the patent being that "full power and authority is conferred upon two or more members of the Board to do all that appertains to the office of High Admiral." Therefore, according to the terms of the Patent each member stands upon an equality with the others in regard to his powers and Parliament. But the general opinion is that this contra- *collectively* responsible. By the Admiralty Orders in Council, however, of the 14th January, 1869, and 19th March, 1872, the First Lord of the Admiralty was designated as individually responsible to King and Parliament for the whole business of the Admiralty, and it was declared that the remaining members of the Board were severally responsible to the First Lord for the conduct of all business which he might apportion to them. This contradiction between the wording of the Patent and the above quoted orders in Council has for years past given rise to repeated discussions—in the proceedings of Parliament, in parliamentary committees, and in commissions of inquiry appointed by King or Parliament—in regard to the position of the First Lord and the other members of the Admiralty Board towards one another, towards the Cabinet, and towards Parliament. But the general opinion is that this contradiction is rather apparent than real, that actually, during a long and unbroken period, the higher authority of the First Lord over his colleagues, and his greater responsibilities have been generally recognised.

It is proved from the reports of the special committees of the Lower House in 1861 that the administrative efficiency of the Admiralty was already maintained on these principles prior to the issue of the Orders in Council of the 19th March, 1872. Those of the 14th January, 1869, wherein the sole responsibility of the First Lord for the government of the Navy was for the first time officially laid down, merely gave expression to what had for years past been the general practice.

The former First Lord of the Admiralty and reorganizer of the English naval administration—Sir James Graham—said in regard to this before the Special Commission of 1861, that "the Board of Admiralty would indeed never be able to perform its duties if the First Lord were not placed first, and regularly exercised superior and controlling authority." But before the self-same commission it was expressly said, on the other hand, that this "practice" had altogether changed the character of the Board and that this character had now appreciably approached to that of an organization where a Minister governs with the help of an advisory council. The opinion given in appendix I. of the 1890 Report of a former Permanent Secretary of the Admiralty goes even further: "It would be more correct to call the First Lord of the Admiralty, Secretary of State for the Admiralty, and the other members of the Council, Heads of Departments, instead of calling them the Board of Admiralty." Rear-Admiral Hotham, then Junior Naval Lord (now called Fourth Sea Lord) of the Admiralty, expressed himself in similar terms: "It would be better to do away with the title 'Board of Admiralty,' and to call the First Lord 'Navy Minister,' which he actually is according to custom and practice, and according to the Orders in Council." The Report of the Commission of 1890 says, in agreement with this, that "the present system of Admiralty administration is the result of parliamentary interference in what was at one time in all respects a Council. The responsibility and also the supreme power of the First Lord of the Admiralty have substantially increased, and he is now, for all practical purposes, the Naval Minister." This coincides with the conclusions arrived at from the proceedings of the Special Commission of the House of Commons in 1888 on the affairs of the Navy.

Despite this recognition, and the generally accepted view that the Board organization of the Admiralty may be regarded as a fiction not worth keeping up, the British nation has not been able to make up its mind to rectify this contradiction between the working of the Patent and its actual interpretation and the decisions of the Orders in Council, and in the place of the "Board" to appoint a Minister or Secretary of State. It is feared that were the alteration of the Patent pressed, the Admiralty would not be so all-powerful as it is at the present time. Some reservation might be made for the Royal Prerogative, which might thereby be strengthened. Particular expression was given to this feeling by the special commission of 1861. Then there is the English dependence on tradition, "that innate conservatism, which has contributed much to the strength and something to the weakness of Britain," and also the deeply-rooted idea that only by means of a "board" can unnecessary outlay be prevented. The English statesman, Robert Lowe, remarked before a committee of the Lower House in 1865: "A board is a

very bad thing to administer, but a very good thing to check expenditure of public money."

In still more recent times—in 1898—Lord Goschen spoke out for the retention of the Board system of government; he said that the collective actuality of the Board of Admiralty, so far as it went, answered the Parliamentary system of government best, and therefore ought not to be set aside. This rooted conviction of the special advantages of a Board administrative organization is so prevalent among Englishmen that in the creation of new government departments (Board of Trade, Board of Agriculture and Fisheries, Local Government Board, Board of Education), formal boards were created by the inclusion of Ministers of other departments, who have quite enough to do in their own offices, and which are consequently organized and worked on a thoroughly bureaucratic basis.

Finally, any alteration in the terms of the Patent is considered undesirable because it is believed that the present wording of the Patent, whereby the remaining members of the Board are described as having equal powers and equal responsibilities with the First Lord of the Admiralty, raises the authority of the individual members in the eyes of the public. This is, however, contradicted by what was said by Sir Charles Wood, at one time First Lord of the Admiralty, before the special committee of 1861: "That he had never himself read the Patent, nor heard of anyone else who had done so." There are probably, therefore, not many people whose views on the authority wielded by the individual members of the Board, are based upon actual knowledge of the words of the Patent.

### 2. POLITICAL STANDPOINT.

#### (a) *In Regard to the Cabinet.*

The Cabinet stands above the Admiralty as above all other English Departments of State, in the same way that in the German Empire the Chancellor is above all the State Secretaries. The Cabinet is composed of a selection of politicians, who all belong to the party in office, are chosen by the Prime Minister, and are appointed by him to their various offices. It consists of the First Lord of the Treasury as Premier, of the Chancellor of the Exchequer, who is really the Finance Minister, of the five Secretaries of State, and the Lord Chancellor, and usually, for a long time past, of the First Lord of the Admiralty and of the Lord Lieutenant of Ireland or of his secretary, the Chief Secretary to the Lord Lieutenant of Ireland.

This Cabinet decides upon the general lines upon which the government is to be carried on in agreement with the general policy of the State; it controls in important administrative matters the action of individual heads of departments, and especially does it determine the establishments of the Army and Navy. The Cabinet alone can decide upon what sum of money is re-

quired for the furtherance of its particular policy, and lay down, from this basis, what portion can be allotted for the Navy. "Expense governs everything," said the Second Sea Lord before the special committee of 1888. The responsibility of the Cabinet therefore takes the place of the responsibility of the First Lord of the Admiralty so far as this direct co-operation of the Cabinet goes; in other respects the First Lord, as will be more clearly shown later on, is responsible for the administration, control, and policy, of the Admiralty. But for the proper understanding of the nature of this responsibility, it must be borne in mind that the collective responsibility of all members of the Cabinet forms the basis of Cabinet government. Unless, therefore, the Premier suddenly throws over his colleague and follower, the House of Commons can only accept the view of the responsibility of the First Lord of the Admiralty by turning out the Ministry; but it will hardly come to the determination to do this on a mere matter of departmental detail, and force a change of government with its attendant inconveniences, expense, and the uncertainties of the elections.

Should, however, the Cabinet find it necessary to resign on a vote of censure or want of confidence by the House of Commons, or when by a majority it resolves for reasons of its own upon resignation, or if the Premier alone thus decides, then all the other members, including the First Lord of the Admiralty, must resign their offices at the same time. This occasions a constant change in the control of the Admiralty, which has frequently been regarded as an evil. Sir Thomas Cochrane, for example, thus expressed himself before the special committee of 1861: "The chief and crying evil, in my opinion, is the frequent change in the composition of the Admiralty Board. I believe the whole business of the Admiralty would come to a standstill were it not that the permanent officials occupy leading positions. Since I have been in the Service changes have taken place two and twenty times, and since I was eight years ago appointed Commander-in-Chief at Portsmouth, there have been five changes at the Admiralty." The frequent change is all the more disturbing, as it is the rule that, not perhaps all, but the *majority*, of the remaining members of the Board go out with the First Lord.

This is all, however, looked upon as an unavoidable evil resulting from the parliamentary form of government, the nature of which induces a constant change of system and vagueness of plan with the change of party. "So long as the parliamentary system is in the ascendant, so long must all the great departments of State be subject to the control of Parliament. And if they are subject to such control, then they must be influenced by the ebb and flow of parties. The predominant party will possess the power and will select its own instruments for exer-

cising it; but certainly frequent changes at the tiller naturally lead to erratic steering."

A further consequence of the parliamentary system is that the Head of the Admiralty—like the Head of the War Office—rarely belongs to the Service. It is a recognised principle of the party system that the parliamentary form of government requires political and especially *party*-political experience in aspirants to high office. Such experience cannot be acquired, even in positions of authority incidental to the Service, but only in public life, in the war of parties. Interesting details under this head are to be found in the Minutes of the Report of the Commission of 1861. The then First Lord of the Admiralty, the Duke of Somerset, stated, for instance: "I do not think that, with a representative government in the country, you could go on without having the First Lord of the Admiralty a Cabinet Minister; and if you are to have the First Lord a Cabinet Minister, it will not often happen that an officer will be found in the Navy in that position in Parliament to be made a Cabinet Minister." Sir James Graham said: "I am strongly of opinion that while our government is parliamentary, it is greatly in favour both of the Service and of the State that a civilian should be at the head of the Board of Admiralty."..." Under our Parliamentary Government, I cannot conceive the office to be divested of political bearing."..." There is a great difficulty in finding a naval officer, however eminent in his own profession, consistently with the Parliamentary Government, capable of performing adequately the political functions, . . . but if you come to political life, to controversies in Parliament, to sustaining in debate the views which they (the officers) may strongly entertain, if they have to superintend all the details of the Civil Service, which past habits have not made familiar to them, I think they have not an equal chance with civilians; you cannot expect that they will render the same service any more than if you send a civilian to command a fleet; he would be found extremely deficient." The views of Admiral Sir Thomas Cochrane and of Vice-Admiral M. Berkeley are in agreement with the above. The celebrated Admiral Lord St. Vincent, on his appointment to be First Lord of the Admiralty, wrote: "How I shall succeed remains to be proved: I have known many a good admiral make a wretched First Lord of the Admiralty."

The possibility of acquiring the necessary political experience in public, and especially in party, life, has been rendered much more difficult for an officer through the Reform in the Franchise.

Besides the First Lord, the Civil Lord and the two Secretaries are usually civilians. It is, however, possible that the Civil Lord (only so-called because he must have a seat in the Lower House) may, be a naval man. One of the two secretaries

may also be represented by a naval officer, but this is by no means the rule.

In other respects also the British Navy is controlled and administered by civilians to a far greater extent than is the case with the navies of other Powers. The Commission of 1890 held that from many points of view this was an advantage; a greater cohesion in the administration was thus arrived at than if the major portion of the work of the Department was in the hands of officers, who, if they were not at certain regular intervals sent back to their own legitimate employment, would soon lose touch with the advances made in the knowledge accumulated of the duties demanded of them. By employing permanent officials in high places, a greater mastery of the details of the administration is assured. On the other hand, the Commission considered it an imperative necessity that, to a greater extent than had hitherto been the case, naval officers should be employed in the Admiralty for the despatch of technical matters of business connected with the work of the department; in this way, by employing naval officers on the staff of the Admiralty, sea-going officers would acquire a wider knowledge of the general system, of the possibilities and difficulties of the administration; a sense of confidence would be aroused, and the disposition to criticise, inseparable towards all departments of State by subordinates, would be lessened.

*(b) In Regard to the Secretaries of State.*

Besides the influences above mentioned, those must be noted which the Secretaries of State, *as such*, are able to exercise upon the Admiralty. Thus each of the five Secretaries of State can in case of emergency call upon and direct the military and naval forces of the country. And even in other respects the preponderance of the Secretaries of State over the other departments applies also to the Admiralty. Thus in the proceedings of Parliament during the Session of 1898 Lord Charles Beresford, then a member of the House of Commons, pointed out that when a naval officer was recommended for a decoration, such as the Commandership of the Bath, the recommendation had to be laid before the Crown— not by the First Lord of the Admiralty, but by one of the Secretaries of State. He had therefore for years past pressed that the First Lord should be made a Secretary of State: the Service suffered throughout from the existing arrangement.

*(c) As Regards the Imperial Defence Committee.*

Finally, the Imperial Defence Committee also exercises a certain influence upon the Admiralty. This is neither a Council of the Crown, nor a Committee of the Cabinet, and it has no executive functions. It exists, solely for the purpose of formulating and putting on record the best possible advice in regard to questions of Defence of the Empire for the benefit of the De-

partments chiefly concerned—the Army and the Navy. It is composed of the Premier as President, the Lord President of the Privy Council, the Secretary of State for War, and the First Lord of the Admiralty; to those are added the following, who are not members of the Cabinet: the First Sea Lord, the representative of the Mobilisation Department of the Navy, the representative of the Naval and Military Intelligence Departments, and other technical experts who may be summoned by the Premier to attend.

*(d) The Admiralty as a Court of Law.*

The Admiralty has no longer as of old any position in the legal system of the State as a special Court of Law. The Court of the Lord High Admiral, or of his representative, existed in the time of Edward III., since 1357, and enjoyed a prescriptive right of jurisdiction, which, in accordance with a decree confirmed in the time of Richard III. (1377-1399), was concerned with all kinds of injuries incurred at sea, beyond the boundaries of the Kingdom, and which later was extended to deal with all matters having reference to the sea. It had, further, a special jurisdiction in all matters connected with prizes, and finally it came to be concerned with all offences committed on board ship, on the high seas, and on the tide-way of rivers below the first bridge. This jurisdiction has now practically come to an end since all punishable offences committed at sea are now, so far as their character and culpability are concerned, dealt with just as if they had been committed in England or Ireland. The only jurisdiction remaining within the province of the Admiralty is under the Naval Discipline Acts of 1866 and 1884, and it is exercised by Courts Martial, and under the summary powers of the ship commanders; these are supervised by the Judge Advocate of the Fleet. But all persons belonging to the Navy, in the same way as soldiers of the Army, are amenable to the ordinary law of the land, as well as to the jurisdiction of the Articles of War. The former Admiralty Court is now a part of the "High Court of Justice—the Probate, Divorce and Admiralty Division." The experts required for adjudication on naval questions—known as the Nautical Assessors—are nominated through the Admiralty.

3. THE EXTENT OF THE WORK.

*(a) In General.*

Since the days of Henry VIII.—1509-1547—and up to the year 1832, the business carried on by the Board of Admiralty was conducted by three different departments—the Board of Admiralty, the Navy Board, and the Victualling Board. The first-named was the department of the Lord High Admiral or of the Commissioner appointed to "execute his office"; it concerned itself chiefly with the appointment and promotion of

officers, the movements of ships, and the general control of navy policy. The management of the dockyards, finance and payments, the provision and distribution of stores, the rationing of the Navy, and the transport arrangements all belonged to the departments of the Navy and Victualling Boards. The business conducted by the Admiralty Board was, as an English historian states, of the nature of that which in the German Army is carried out by the King, the Military Cabinet, and the Great General Staff; while the work of the two other boards resembled that which in the German Army is conducted by the War Ministry. The Navy and Victualling Boards were originally subordinate to the Board of Admiralty, but succeeded by degrees in making themselves more and more independent of it. By means of the reforms introduced by Sir James Graham in 1832, the different civil departments, numbering 13, and each more or less independent of the other, and of the Admiralty Board, were united under the Admiralty. According to Hamilton, it is by this measure, which in the space of four years effected a saving of over a quarter of a million, that the Admiralty and its various departments acquired the uniform and flexible character which they to-day possess. In modern times, however, the existing reorganization scheme of Graham is regarded rather as a blunder, and as a misfortune for the Navy. It is said to be a divergence from the sounder organization of Henry VIII. above described, which endured during 300 years, and particularly during the times of the great naval wars; that the political and executive control should be superior to the administration, but should also be separate; that those who have the guidance of warlike operations should be freed from the worry about details connected with the provision of ships, munitions, supplies, etc., by means of which war is carried on. All the Lords of the Admiralty are now brought into touch with questions of the provision of material, and their thoughts are turned from considerations of the best methods of using the means to be provided.

The result of the centralization of all the work in the year 1832 was that all transactions of the administration and of finance, in addition to the war and technical and command work, were united in the hands of the Board of Admiralty, namely, both the administration and the command of the Navy. Since then the Admiralty, as Hamilton states, "exists for the proper constitution, maintenance, and disposition of the fleet in its material and personal elements. It is the organizing force behind our Sea Power—that system and that machinery by which the fleet is created and sustained, by which it is supplied with trained officers and men, distributed throughout the world, and constantly furnished with everything necessary for the exercise of its functions in peace, and for its readiness in case of war."

The control and the employment of the fleet in war are also imposed on it.

(*b*) *The Patent.*

The Royal Letters Patent, which at every change of Ministry appoint the Commissioners who jointly compose the Board of Admiralty, form the basis of the full powers conceded to the Board for the proper performance of its duties. This Patent goes back to that granted to the Lords High Admiral, and transfers in regular sequence the Powers of the Lords High Admiral to the Board as it now exists. To-day's Letters Patent find their earliest type in those which Henry VI. (1422-1461) granted to the Earl of Warwick. Since those days only certain trifling alterations have been made in the wording of the text. There is only one change of any importance—formerly the Letters Patent were granted to "three or more Commissioners," whereas to-day the wording runs "to two or more Commissioners," but at the present time this does not have any particular effect, since in the actual result the will of the First Lord stands predominant.

The Patent is divided into 8 main parts: the first pronounces the warrant for "executing the office" of Lord High Admiral. By virtue of the second part the Commissioners issue orders for the building, repair, and fitting out of ships, and fix the scale of payments. Part 3 directs the officers of the Navy and the officials of the different branches of the administration to obey the orders of the Commissioners. In Part 4 the Commissioners are empowered to draw up rules and regulations for improving the discipline of the Service. The fifth part is concerned with matters which to-day have no application—fees, dues, and prerogatives of the Admiralty. By virtue of Part 6, the Commissioners are empowered to nominate Vice-Admirals of the Coast of England, whereby must be understood the present representatives of the Lord High Admiral, and not senior or executive officers. Part 7 gives the Commissioners the power to appoint the heads of the various departments, while in the 8th Part they are authorised to make contracts. The Letters Patent conclude by clothing the Commissioners with the authority of officials who no longer exist, such as "the Principal Officers," the Commissioners of the Navy Board, and the Commissioners of the Victualling Board.

It has already been pointed out that nobody troubles himself much with the terms of the Letters Patent, the less that it is generally recognised that the Patent expressly confers upon the Board of Admiralty no more than a fraction of the power which the Board uses and has hitherto enjoyed, and that for the control and for the privileges of the office the real standard is immemorial usage, which in all offices becomes a kind of tradition. The authority of the Lords High Admiral themselves and of their forerunners, the local admirals, was exercised according to immemorial usage, and by virtue of the full powers conferred by

the Crown in regard to maritime affairs. There is in the body of the Patent a certain indefinite authority—nowhere actually laid down—based upon *custom*, and whereby it becomes possible for the First Lord of the Admiralty to carry out any project which appears to him to be required for the safety of the Kingdom.

The custom which covers this authority is specifically mentioned in a Declaratory Act of the year 1690, which affirms "that each and every authority, dominion, and power with which by any act of Parliament or by other measure the Lord High Admiral of England was and is clothed and invested, and which in the same manner was and may be attached to him, the same has always belonged to the Commissioners executing the office of Lord High Admiral of England, and will by right be by them possessed, enjoyed, and exercised, and can and shall be possessed, enjoyed, and exercised, according to this Act, for all purposes and at all times, as if the named commissioners were themselves the Lord High Admiral of England."

(*c*) *Organization and Responsibility within the Board.*

At the head of everything stands the First Lord of the Admiralty, whose powers are only limited by the Orders in Council, and who, by virtue of the above mentioned authority of the Board, apportions the work among the individual members, and the different departments and branches supervised by the members and the secretaries.

We shall have more to say later on about the distribution of the work. One consequence of the division of the business of the administration among the individual Lords and Secretaries in place of the former collectively, is that the individual members of the Board have now each a varying degree of responsibility. Something has already been said above about the responsibility of the First Lord in regard to the Crown, to Parliament, and to his colleagues. He is responsible for the whole Navy so far as concerns policy, control, and administration; he represents the Navy in Parliament, in everything which concerns the Navy he is looked to. His is the final decision in all matters, and he is not in any way bound by the advice of the other members of the Board, or even by an unanimous vote of his colleagues; he is not even obliged to hear what the others have to say prior to any decision he may come to, nor need he permit them to share in carrying out any plan which may seem to him advisable. He can also at any time demand of the Cabinet the dismissal of any colleague. The responsibility of the First Lord has been so defined as being responsible for the Admiralty in the same way that the Premier is for the Cabinet or an admiral for the fleet he commands, who, for example, is not responsible for a collision between two ships unless it results from one of his orders or from miscarriage of such order.

The question of the responsibility of the remaining members of the Board has not been always undisputed. It is laid down in the Order in Council of 1872 that the members of the Board are answerable to the First Lord (but not to Parliament or Crown) for the conduct of such business as he may entrust to them. The more closely defined the administrative business of the individuals may be under this allotment, the more complete and distinct must their personal responsibility become. Absolutely clear definition is not, however, under all circumstances possible, a certain overlapping is unavoidable, which not only, as Sir James Graham remarked before the Royal Commission on "Civil Establishments," acts with a retarding influence upon the course of business, but brings in its train a degree of uncertainty as to the personal responsibility of individual members. But doubts have chiefly arisen as to the extent of responsibility of the individual members, owing to their curtailed spheres of business, and especially in regard to decisions come to at the Board meetings.

The Commission of 1890 ascertained that one side declared as to this, that, "while the First Lord was responsible for the whole Navy, the members of the Board were together equally responsible with the First Lord of the Admiralty for the strength of the Fleet and for its strength being sufficient"; further, "the responsibility for any decision come to by the Board, as such, must be shared by every member who has not opposed it, or, if the matter is of great importance, has not resigned." On the other side, it was contended that "it was at least a debatable question whether it is part of the duties of the members to state in opposition to the First Lord what in their opinion were the naval requirements of the country; such an act, although within their powers, was rather one of patriotism than of duty"; again, "the responsibility for the strength of the Navy lies with Parliament, and not with naval officials."

The Commission of 1890 laid down definitely that "the organization of the Navy Department partook more of the character of an advisory council with a responsible head than of a governing board. The Minister was the only person who could be recognised by Parliament and public as responsible, and the responsibility of the members of his council, whether in regard to their governing or ordinary powers, rested entirely with the Minister. On the First Lord alone must rest all responsibility for decisions in regard to measures of precaution to be taken for naval exigencies, and the existence of an advisory body cannot be considered as in the smallest degree intended to lessen such responsibility." That in such a case the responsibility of the Cabinet takes the place of that of the First Lord has been already explained under 2 (*a*).

In relation to the First Lord the responsibility of the individual Lords is the same for all. But for the First Lord alone certain new modifications have recently arisen in this respect.

The Commission of 1890 decided that the First Sea Lord, in view of the extent of the business conducted by him, should be recognized as the chief adviser of the First Lord of the Admiralty, and for this reason should occupy a special position. The Commission held it to be necessary that he should bring to the notice of the First Lord all questions connected with the distribution of the fleet in peace and war, the proportionate strength of the British fleet as compared with those of other Powers, the duties of the fleet in regard to the protection of commerce and of oversea possessions, the number, class, and type of ships to be retained in the service or to be built, the relation of the Navy to the Army under all conditions in which amphibious operations or separate action might be necessary; in fact, all matters rather of naval policy than of administration.

The Commission proposed that the "constitution of the Office of the First Naval Lord" (now First Sea Lord) should be that of "Chief Adviser of the First Lord in all great questions of Naval Policy."

In a special note attached to the report, Sir F. Richards, one of the Commissioners, pointed out that such a ruling would place the First Sea Lord in a position of isolation, since it would deprive him of the support of his colleagues; it would also tend to restrict the First Lord of the Admiralty to dependence upon a single man in regard to responsible professional advice.

By the Orders in Council of 10th August, 1904, the proposal of the Commission was accepted on being brought before both Houses in 1905, on the motion of the First Lord of the Admiralty on 20th October, 1904. The First Sea Lord has now, therefore, to advise the First Lord of the Admiralty on all great questions of naval policy and war. By this decision he is also considered in relation to the First Lord, as responsible for the seaworthiness of the fleet and its readiness for war.

But just as the Report of the Commission of 1890 aroused opposition, so in like manner have the regulations arising from the Order in Council of 10th August, 1904, given rise to discussion. It has been said that they constitute a great innovation, that the position and authority of the other members of the Board have been seriously depreciated, that even the position of the First Sea Lord has been lowered, that he no longer receives the support of responsible colleagues, but of irresponsible men, who are practically no more than heads of departments under him; it is, moreover a risky matter to place the First Sea Lord between the First Lord and the rest of his colleagues. But thereby the fact is not altered, that it is laid down in the work-distribution plans that all members of the Board have the right of dealing directly with the First Lord of the Admiralty. Another disadvantage of the regulations is that they have the result of giving the First Sea Lord too much voice in questions of *matériel*.

(*To be continued.*)

The following article is, by agreement with the Society for Nautical Research, reproduced from the current number of "Mariner's Mirror."

# THE UNION FLAG.[1]

By Rear Admiral Sir R. Massie Blomfield, K.C.M.G.

I VENTURE to attempt a further elucidation of the question so ably treated by Mr. Perrin, in the February number of the Mariner's Mirror, as to the origin of the practice of British Royal Ships flying on a flagstaff at the bowsprit end a small replica of the National Flag.

From ancient seals it appears to have been usual for Royal ships to carry a flag at the bow; but the earliest mention of a bowsprit flag as proper to be carried in time of war, or in a Naval Action, which I have found, is in a MS. in the Domest. S.P., Elizabeth, Vol. CCLIX., 48 (June, 1596), containing a paper book, with "Certaine briefe notes and necessaries, with objections, for warlike affaires concerninge two Princes' Armies of Shipps meeting uppon the Seas to encounter the one with the other, w^h^ I doe sett downe of myne owne simple experience," by a Captain John Yonge, whose sea service extended back to the time of Henry VIII, and whose forty-six "Rules for Naval Affayres," submitted for the approval of Lord Charles Howard and the Earl of Essex in 1596, appear to have formed the basis of the instructions issued by them for the conduct of the fleet in the voyage to Cadiz.

Rule VIII, which, he says, is "moste needfull to be observed in all pointes as shall appeare to divide the good service from the badde," contains the following: "It is convenient and very necessarye to knowe whoe dothe or doth not come in, that everye Admirall and all his own Companye must weare uppon theire Mizzen Yarde Armes, Pendants; and looke, howe manie Admiralls you have, soe many severall cullers of Pendants you must have alsoe, unto the full copplement of yo^r^ Shipps, Barkes, and Pinnaces, by which meanes being accomplished you shall easily see and perceyve whoe doth come into the Fight or not, whiche, without these sondrie cullers of Pendants for yt, cannot be otherwise perceyved; and, that the cullers maye be the better knowne from those of the Enemy's yf they chance to have the like, it shalbe, then, convenient that upon yo^r^ mizzen flaggstaves, or *th'ende of yo^r^ bowlesprits*, there bee but a *smawle little flagge with a red Crosse*, yt being but a little bigger than a vaine of a greate Catche."

[1] See Journal R.U.S.I. for February, 1911, p. 219.

Here we have an evident suggestion for what was afterwards known as the "jack," or small form of the National Flag, shewing that the idea did not originate in the reign of James I, whether it was that of Captain Yonge or only in accord with his own experience; but, as the "jack" is not shewn in the illustrations on pp. 45, 47, 49, 51, Vol. XX., N.R.S., of the Flagships in the Howard-Essex Fleet of 1596, the suggestion of Captain Yonge may not have been adopted, and we are still left in the dark as to when the term "jack" was first applied to the "smawle little flagge with a red Crosse" at "th' ende of our bowlespritts."

The use of the above-mentioned "cullered pendants" at the yard arms, or at different mastheads, to distinguish the ships of different squadrons, was continued throughout the reigns of James I and Charles I, and are those alluded to by Mr. Corbett in his note at p. 108, Vol. XXIX of the N.R.S., cited by Mr. Perrin, until superseded in 1653 by the fly-ensigns introduced by Blake, Deane, and Monk, with the universal man of war pendant at the Main.

The Duke of Buckingham, in 1625, and Sir William Monson[2] and Captain Nathaniel Boteler[3] (both writing about 1635 A. D.), are very clear as to the use of coloured pendants at that date by men of war, being always indicative, in conjunction with the place at which they were displayed, of the particular squadron to which they belonged. Sir W. Monson says, "Every ship of the Squadron, besides, is to wear a streamer of the same colour in the Forehead or Mizenyard to be distinguished from the other Squadrons." The colours of these squadron-streamers, or pendants, unless specially designated by the Commander-in-Chief of the Fleet, being like the flags of the Squadron-Admirals, Vice-Admirals, and Rear-Admirals, left to the discretion of the Squadron-Admiral, who, as Vice-Admiral, or Rear-Admiral of the whole fleet, also carried the British Flag at the Fore or Mizzen.[4]

Monson, who was then Vice-Admiral of the Grand Fleet under the Earl of Lindsay, is speaking of a fleet of that size, of which the three primary divisions were each sub-divided into three sub-squadrons having their own Admiral, Vice-Admiral and Rear-Admiral. In the following instance the fleet

[1] Is it only a coincidence that Capt. Yonge's name was Jack?
[2] Book III., Naval Tracts "Instructions from a General to his Vice-Admiral Rear-Admiral and Captains to be observed by them at Sea."
[3] Dialogical Discourse, &c. Dial. 5th, Sloane MS. 758.
[4] This is well illustrated at pp. 45, 47, 49, 51 of Vol. XX., N.R.S.

was too small to necessitate the three Main Squadrons being divided into more than two parts.

[5] Intruççons given by mee, George, Duke of Buckingham, Lord High Admiral of England for this ffleete, appointed to transport the Queen's Ma^tie ffrom Bulloigne, June 4, 1625; ffor ye more convenient orderinge of this ffleete I have thought good to divide the same into three partes or squadrons, viz:—

| | | | | |
|---|---|---|---|---|
| *The Admirall* in y^e Prince Royall wearing y^e Flagg in y^e Main Topp who (though she be attended by all y^e rest) shall especially have y^e | Rainbowe<br>Mary Rose<br>Royal Ark<br>Abygail | with y^e | Hopwell<br>Adventure of Ipswich<br>Abiah | Everye of them wearinge y^e pendant in y^e Main Topp |
| *The Vice-Admirall* in y^e Anne Royall with y^e Flagg in y^e Fore Topp, to be attended by y^e | Antelope<br>Prudence<br>Saphire<br>Martha | with y^e | Dreadnought<br>Talbott<br>Assurance of Dover | Every of them wearing y^e pendant in y^e Fore Topp |
| *The Rear-Admirall* in y^e Lyon, with y^e Flagg in y^e Mizen Topp | Assurance<br>Convertive<br>Zouch Phenix<br>Globe | with y^e | Supply<br>Mary Constance<br>Mary Anne | Everye of them wearinge y^e pendant in y^e Mizzen Topp |

Here follow twenty Articles of "Instruççons for Saylinge," in which no mention is made of the colours of flags or pendants; but Art. XVII of Lord Wimbledon's Instructions, a few months later, says:—

[6] "The whole Fleet is to be divided into three squadrons; the Admiral's Squadron to wear red flags and red pendants at the Main topmast head; the Vice-Admiral's Squadron to wear Blue flags and Blue pendants at the Fore topmast head; the Rear-Admiral's Squadron to wear White flags and White pendants at the Mizen topmast head"; no discretionary power as regards the colour of flags or pendants being left to the Squadron-Admirals nor, indeed, any mention of the latter; but we know that the fleet was sub-divided in the orthodox way from the following list, which I give verbatim (dated, October 8th, 1625) [7] of the ships forming it."

---

Domest. S.P., Charles I.
Vol. XXIX., N.S., p. 55.
[7] Domest. S.P., Charles I., Vol. VII., pp. 48, 49, 50.

Again, Nathaniel Boteler, in his 5th Dialogue,[8] says of Pendants, "The use of them is to distinguish the Squadrons of a Fleete by hanginge them out in the topps of such shipps as carry noe flagges there. As, for example, all such shipps as are of the Admirall's Squadron are to hang them out in their Main Topps; those of the Vice-Admirall's Squadron in their Fore Topps; and those of the Reare Admirall in their Missens; and here alsoe they are to be of severall cullers; But besides this use, in great shipps and especially in such as belong to the King, they are often used by way of tryumphe and ornament, and are then hung att every yarde arme, and att the

| The Admirall's Squadron. | | The Vice-Admirall's Squadron. | | The Rere-Admirall's Squadron. | |
|---|---|---|---|---|---|
| *The King's Ships.* | | *The King's Ships.* | | *The King's Ships.* | |
| *Admirall* | Anne Royall. | *Admirall* | Swiftsure. | *Admirall* | Red Lyon |
| The Lo. Marshall | Tunnes 1000 | The Earl of Essex. | t. 876 | Sir Fra. Steward. | t. 650 |
| Captain Sir T. Love. | Seamen 400 Landsmen 0 | Capt. Sir S. Argyll | s. 250 l. 0 | Captain ? | s. 250 l. 0 |
| *Vice-Admirall* | St. Andrew. | *Vice-Admirall* | St. George. | *Vice Admirall* | Raynbowe. |
| The Lo. Denbigh. | Tunnes 895 | The Lo. Valentia. | t. 895 | The Lo. Cromwell. | t. 650 |
| Capt. Sir J. Watts. | Seamen 250 Landsmen 0 | Capt. Gilbert | s. 250 l. 0 | Captain Chadley. | s. 250 l. 0 |
| *Rere-Admirall* | Convertive. | *Rere-Admirall* | Reformation. | *Rere-Admirall* | Bonadventure |
| Sir W. St. Leger. | Tunnes 500 | The Lo. de la Warr. | t. 750 | Sir H. Palmer. | t. 674 |
| Captain Porter. | Seamen 200 Landsmen 0 | Capt. Greeves. | s. 250 l. 0 | Captain ? | s. 250 l. 0 |
| N.B. Attached to the Admis. Squadron were 20 Merchant Vessels averaging 300 tons each, and carrying in all 4,400 soldiers and landsmen. | | N.B. Attached to the V.-Admiral's Squadron were 21 merchant vessels carrying 3,008 soldiers and landsmen; also 5 victualling ships. | | N.B. Attached to the Rear-Admirall's Squadron were 20 merchant vessels carrying 3,000 soldiers and landsmen; also 5 victualling ships | |

heads of ye mastes. *And these are their only uses and employment.*"

The Proclamation of 9th March, 1661, directing the flags, jacks and pendants of H.M.S. to be thenceforth made of "Red, White, and Blew," cited by Mr. Perrin, is certainly obscure; but may have reference to the option which Monson says was given in his day to Vice-Admirals and Rear-Admirals of a fleet to choose what coloured flags they should display at the main of their Flagships as Admirals of a squadron, in addition to the National flag flown at the fore or mizzen as Vice-Admirals or Rear-Admirals of the whole fleet; and may have been intended, thenceforth, to confine the Royal Navy strictly to the three colours of the Union—Red, White, and Blue.

We find a still more obscure direction in the instructions of L.H.A. the Duke of York "for the better ordering of H.M. Fleet in sayling," signed by himself and his secretary, Mr. Werden (which fixes the date as between August 1672 and

[8] Sloane MSS. 758, B.M.

May, 1673). There are 26 articles, of which Art. VIII., after describing who is to come on board the flagship when the *Union Flag*, an Ensign, the Standard, a Red flag, a White flag and a Blue flag, respectively, are displayed in the "Mizzen Shrouds"; proceeds to say who should come on board when the Standard, a White flag, a Blue flag, and a "*Jack coloured with colours*," respectively, are displayed at the "Ensign Staff."

Are we to suppose that the old British "jack" was still in use in the Royal Navy, as well as in the Merchant Service, in 1672, and that the "Jack coloured with colours" means the Union Jack, the peculiar description of the latter being necessary to distinguish one "jack" from the other?[9]

As regards the misapplication of the term "jack" to the Union Flag when flown elsewhere than at the bowsprit end, which I have described in the "Navy" journal as dating from two centuries ago, I may cite Josiah Burchett, Secretary of the Admiralty from 1695 A.D. to 1742, who tells us, that, in 1702, "there were some doubts whether his Lordship (L.H.A, the Earl of Pembroke) should have borne at the Main topmast head the Royal Standard of England, or *the Union*, or, more properly speaking in Maritime phrase, *the Jack Flag*."[10]

[9] NOTE.—The MS. copy of these instructions in the Admiralty Library, which is believed to have been made for the Duke of York's own use, shows in the margin against this description of the "Jack coloured with colours" a drawing of the Union Jack. There can thus be no doubt as to the interpretation of the term.—ED.

[10] Naval History, p. 619.

# THE MEXICAN ARMY.

Translated from the *Revue Militaire des Armées Etrangères* for May, 1911, and published by permission.

## PEACE AND WAR STRENGTH

THE Mexican Army consists at present of 28,515 of all ranks viz :—

*Officers.*

| | |
|---|---|
| Divisional Generals ... ... ... | 7 |
| Generals commanding Brigades ... | 41 |
| Brigadier-Generals[1] ... ... ... | 55 |
| Superior Officers ... ... ... | 511 |
| Subaltern Officers ... ... ... | 1,771 |
| Total Officers | 2,385 |

*Rank and File.*

| | |
|---|---|
| Infantry ... ... ... ... | 17,080 |
| Cavalry ... ... ... ... | 5,800 |
| Artillery ... ... ... ... | 1,550 |
| Other Arms and Departments ... | 1,700 |
| Total Rank and File | 26,130 |

To these figures must be added 41 superior officers, 110 subaltern officers, and 1,000 rank and file belonging to the Navy, but administered by the War Department, making a grand total peace strength of 31,500 men, a number which the Government can increase as required by a simple demand on the Governors of States.

The war strength is estimated, in theory, at about 84,500 men, but it is doubtful if more than 50,000 combatants would actually be available.

## DISTRICTS AND COMMANDS

Mexico is divided into ten military districts, and three commands, besides the independent command of Tepic. These districts are of equal strength, as regards the provinces, but in the federal district of Mexico there is a considerable concentration of troops with a view to the maintenance of order.

[1] These Officers may be employed to command Battalions, Regi ments, or Brigades.

The whole of the artillery, the battalion of engineers, six battalions of infantry, 5 regiments of cavalry, the squadron of military gendarmerie, and the squadron of presidential guards, about one-eighth of the army, are allotted to the district.

ORGANIZATION

The President is head of the army, and acts as commander-in-chief.

*Infantry*.—The infantry consists of 30 battalions of 4 companies each (strength of a company 8 officers and 140 men); 4 cadres of infantry battalions[1], and 2 local companies of Lower Californias.

*Cavalry*.—The cavalry consists of 18 regiments of 4 squadrons each (strength of a squadron 8 officers and 80 sabres); 1 squadron of presidential guards, 1 squadron of military gendarmerie, 4 cadres of regiments of 2 auxiliary corps at Puebla, and in Sonora, and a squadron which acts as escort for the commission of exploration.

Under the cavalry arm may also be reckoned the "Rural" troops formed by Suarez, immediately after the French intervention; these men are recruited with great care, and are much respected in the country districts. They consist of 20 sections of 100 men each.

*Artillery*.—The artillery consists of 4 regiments of 4 six-gun batteries (including one field and one mountain battery) each. There is also a mounted detachment, armed with quick-firing guns of small calibre, consisting of 2 batteries intended to accompany cavalry, besides 1 company armed with 12 machine guns, 2 companies of heavy artillery, 3 sections of coast artillery, and 1 "squadron" of artillery transport.

*Engineers*.—The engineers consist of 1 battalion of about 600 men, an engineer park (one company), and a telegraph unit.

The staff is a separate corps, and is formed by officers drawn from the Military College at Chapultepec, who have studied for 7 years.

*Ordnance Corps*.—The ordnance corps (*Artilleurs constructeurs*) are responsible for the repair, preservation, and improvement of all military *matériel*.

Under this corps are:—

The Commission, which undertakes the manufacture of warlike stores.
The National Arms Factory.
The National Gun Factory.
The two National Powder Factories.
The general artillery magazines.

[1] Since the above was written the 4 Cadres have been abolished: the total number of battalions is now 34.—Ed., R.U.S.I.

*Engineer Constructors.*—The corps of engineer constructors (*ingenieurs constructeurs*) are responsible for the building and maintenance of barracks and military buildings, railway duties, bridges and telegraphs.

*Medical.*—The medical service consists of doctors, apothecaries, and veterinary surgeons. The medical personnel is drawn from the students of the Army Medical School and the Instructional Hospital, and from civilian doctors and apothecaries who have passed an examination. Veterinary surgeons are drawn from the Veterinary School.

*Invalids.*—There is a National Corps of Invalids, commanded by a general or colonel, and organized in two companies. This corps receives officers and soldiers who have lost limbs or are chronic invalids, and soldiers of over 60 years of age who have no families.

*The Officers' Depôt.*—To the officers' depôt belong all retired officers on the emergency list who would be immediately available to complete units to war strength.

*The General Treasury Section.*—This section supervises the administrative services. The paymasters of regimental units are under the Minister of Finance.

*Transport Services.*—These are practically non-existent, but could be easily organized owing to the large number of mules available in the country.

*Military Justice.*—This is regulated by the Revised Code of Military Law, drawn up in 1901.

The courts existing in time of peace are: The Supreme Court of Military Justice, which acts as a court of appeal, and is composed of eight supernumerary generals.

Two courts of military justice, which act as revising courts.

Two courts martial, of which the prosecutors constitute the only permanent personnel.

## CONDITIONS OF SERVICE

The principle of compulsory service is authorized by the law of the 31st October, 1900, which has been in force since the 1st July, 1901. This law fixes the establishment of the cadres, and lays down regulations for their organization and mobilization. Owing to various causes, it has not, however, been carried out up to the present time.

The actual method of recruiting is by enlisting unemployed labourers and loafers for periods of 4 or 5 years.

The law provides for the creation of a first and a second reserve for the active army; but scarcely any steps have been taken to form these reserves.

Finally there are, on paper, at any rate, the militia troops of the several States.

In spite of a somewhat listless exterior the private soldier (who is generally of Indian extraction) possesses military virtues of great value. He is extremely sober, active, a good marcher, courageous, handy, and intelligent. If need arises, he can easily shake off his indolence. The enforcement of obligatory service would, moreover, produce a better class of recruit. As the soldiers are nearly all married, their wives are admitted to barracks; on manœuvres they perform the functions of a supply department, carrying and cooking the daily rations for their husbands.

The Mexican is a horseman from his birth, and gets the best work out of the country-bred horses, which are small, but sturdy, and, like their riders, capable of great endurance. They do not require shoeing, or regular feeding. These animals are suited rather for reconnaissance work than for shock tactics or for remounting the artillery. In addition, a certain number of horses are imported from the United States.

The use of field artillery would be much restricted by the rough and broken character of the country. The mules are excellent; those that are used for pack transport in the mountain artillery have a very practical form of pack saddle, which is well balanced and seldom causes a sore back.

### ARMY ESTIMATES

Although the number of effectives has decreased since 1907, the army estimates have increased considerably, the chief causes being improvements in barracks, *matériel*, equipment, and schools.

The Budget for 1907-8 was £1,796,876; that for 1910-11 amounts to £2,177,987. The money for the principal votes is allotted as follows:—

| | |
|---|---|
| War Department ... ... ... | £59,010 |
| Staff, etc. ... ... ... ... | 112,197 |
| Commands of Military Districts, forts and prisons ... ... ... | 31,309 |
| Infantry ... ... ... ... ... | 560,145 |
| Cavalry ... ... ... ... ... | 231,313 |
| Artillery ... ... ... ... ... | 213,860 |
| Medical Service ... ... ... | 101,034 |
| Military Justice, Archives, Library | 62,724 |
| Administration ... ... ... ... | 439,132 |

### EDUCATIONAL ESTABLISHMENTS

The following are the military educational establishments:

(1) The Military School of Chapultepec. This school accommodates 285 pupils, who join at the age of 16; 80 of these pass out every year. Sixty commissions into the army are given each year, viz: about 35 into the infantry and cavalry after 3 years at the school, and the remainder into the engineers, staff, and artillery after 7 years. The instruction is given

gratuitously. The commandant of the school is a general; his staff consists of 75 officers and professors.

Those pupils who only attend for 3 years attain a standard of military education very little superior to that of the French non-commissioned officers.

Those who study for 7 years have a thoroughly good foundation both in theoretical and professional knowledge, and this is developed by suitable courses on staff, etc.

(2) The school for aspirant officers at Tlalpam. This school has been in existence since 1905. It trains subaltern officers for the infantry and cavalry. At its head is a colonel, with a staff of 37 officers. The students, who number 210, join between the ages of 17 and 21. Some of them enter the school from civil life, by examination; others consist of officers of the active army who have received commissions into the army direct from civil life; the remainder consist of non-commissioned officers who are being trained for commissions. The number of officers who get commissions direct from the ranks without having passed through a military school, or direct from civil life, decreases every year.

Officers are frequently seconded for service with foreign armies.

(3) The School of Musketry, to which each regiment sends two officers every year.

(4) The Medical School, to which is attached the Instructional Hospital.

(5) The Veterinary School. [1]

### ARMAMENT

*Infantry*.—Magazine rifle, Mauser pattern, 7-mm., charger holding 5 cartridges. General Mondragon, formerly military attaché in France, has invented an automatic rifle (known as the "Porfirio Diaz") which has been recently adopted for the army. 4,000 rifles of this pattern have been ordered from a foreign firm. The rifle has a bolt action mechanism, for magazine fire, with a charger holding six cartridges, and a contrivance for utilising the force of the powder gas at the moment of discharge, in order to effect the opening and the closing of the breech.

*Cavalry*.—The Mauser carbine of the same calibre as the infantry rifle.

*Reserve Troops*.—Remington rifle, 1893 model.

*Field and Horse Artillery* [2]—75-mm. Schneider-Canet quick firing guns, 1898-1901 pattern; Saint Chamond Mondragon 75 mm. guns, 1901 pattern; old de Bange field guns, converted under the supervision of General Mondragon to quick firing guns, by the adoption of a simpler breech-mechanism, a hydraulic brake, and a trail spade; de Bange moun-

[1] Details of educational establishments were given in the March number of the JOURNAL, pp. 388 *et seq.*—Ed., R.U.S.I.

[2] Abbreviated from the original.—Ed., R.U.S.I.

tain guns converted into light quick firing field guns on the Mondragon system, capable of being transported on mule back.

There are thus four different types of gun, but nothing which can properly be called a mountain gun.

There are, moreover, no real coast defence guns in spite of the importance of the harbours of Vera Cruz, Tampico, Salina Cruz, Coatzacoalcos, and of the completion of the railway across the Isthmus of Tehuantepec.

### FACTORIES FOR THE MANUFACTURE AND REPAIR OF WAR MATERIEL

It will be long before Mexico is able to dispense with giving orders for arms and equipment abroad. Nevertheless she possesses the following factories:—

(1.) The Small Arm Ammunition Factory of Tacubaya, which was founded in 1907, and turns out, at present, some 9,000 rounds a day, an output which could be doubled if required. This factory is under a General with the rank of Brigade Commander, with an assistant director and 156 male and female employees.

The cartridge cases, the lead portion of the bullets, and the caps are manufactured entirely in Mexico. The outer casings of hardened steel, and the smokeless powder are obtained abroad.

(2.) The Powder Factories at Santa Fé and at Chapultepec. The former factory produces all the black powder required in Mexico; since 1910 it has also made some smokeless powder. The latter factory is poorly equipped, and its output is inconsiderable.

(3.) The Arms Factory at Mexico, which is primarily intended for carrying out repairs; it also manufactures a certain number of gun stocks.

(4.) The Arsenal at Mexico, which also carries out repairs; recently it has undertaken the manufacture of artillery wagons. It is under a Colonel, and employs some 50 workmen.

(5.) The Almacénès, which is a magazine for artillery *matériel* and mobilization harness. It contains more than double the number of guns actually in use, besides a few Hotchkiss machine guns.

(6.) The Naval Arsenal of Vera Cruz, which only undertakes repairs. It contains some armament of French origin, and a few American guns. All the above establishments have been in existence for ten years, and are constantly being improved.

### RAILWAYS

The Mexican railways have a total length of about 15,000 miles. The Mexican Railway Company is the most important system, and is under State control. It is affiliated to the Central Mexican, the National Mexican, and the Interoceanic Railway

Companies. The usual gauge is 4 ft. 8.15 inches; but some less important lines have a smaller gauge.

Since the Téhuantépec Isthmus Railway was opened for traffic in 1907 the district surrounding it has gained in military importance, on account of the economical interests concentrated in the Isthmus; the latter is about 125 miles wide, and is traversed by a mountain range, the Sierra Madre, which falls gradually in a succession of terraces towards the Gulf of Mexico, and slopes steeply towards the Pacific Ocean. The length of the railway is 190 miles.

The chief works involved by its construction are at Salina Cruz and at Coatzacoalcos. This is the only railway which is the property of the State.

# MILITARY EDUCATION.

*Notes by the Editor.*

## EXAMINATIONS FOR PROMOTION, DECEMBER, 1910 (1)

### (*d.*) (*iv.*) MILITARY HISTORY: CAPTAINS AND LIEUTENANTS, ALL BRANCHES (EXCEPT R.A.M.C., A.V.C., A.O.D.).

(*Continued from page* 637.)

#### TERRITORIAL FORCE.

(*Lieutenants all branches except R.A.M.C. and A.V.C.*)

THE reports of many of the examiners draw attention to carelessness in reading questions, irrelevancy, and want of pains in framing answers. To quote from the remarks of the examiner in military engineering (B. 7).

"A word of warning seems desirable as to the necessity of taking pains in answering questions.

In one or two cases it was clear, from sketches and so on, that candidates knew more than they put down on paper, but it is impossible, of course, to allot marks by drawing deductions of this kind, if candidates do not take the trouble to write the necessary explanations."

Taken as a whole, the reports show that candidates were better acquainted with the theoretical side of their subjects than with practical details, or with the exact meaning of technical terms.

Thus, in the paper on Field Service Regulations (B.1) we read that in answer to a question as to the sanitary measures to be taken by a company commander in camp, such answers as "I should not have anything to do with such matters, as I should expect to find them arranged for me before arrival at camp" were frequent. On the other hand, the answers to a question on the true rôle of the defensive showed that officers had thoroughly grasped the principle that passive defence can rarely be justified. Similarly in the remarks on the paper on Organization (B. 3) the examiner points out that it is useless to attempt to write on this subject without knowing the applied meaning of such terms as "war organization," "mobilization," "unit," "division," "2nd line transport," etc. A question in this paper as to the stores which would be taken in a G.S. wagon by an infantry detachment marching off to occupy a post 45 miles distant brought out the fact that many candidates did not know what food or ammunition the soldier carries on his person in war, or what amount of stores could be carried in a G.S. wagon. With regard to the second part of the above question, which dealt

(1) The passages quoted from the report are reproduced by permission of the Controller of H.M. Stationery Office.

with the arrangements to be made on arrival at the post, the examiner remarks:—

"The answers to the second part of this question showed that not many candidates were capable of making good arrangements for their men on service. Small detachments can rarely count on the assistance of Army Service Corps or Royal Army Medical Corps, and all officers should know enough of their duties to be able to carry out such of them as are indispensable to the fighting efficiency, health, and comfort of their men.

The best way to have ammunition readily available in a post is to keep plenty of it in the trenches, where, of course, the men must sleep. Some officers seem to imagine that their 50 men would live in billets. A small detachment such as this can hardly undertake the protection of a post if the officers and men live anywhere but in the trenches they would have to defend, *however unlikely* an attack may be."

The report on the paper on Field Artillery Training (B. 5) shows a marked improvement on the standard of "any previous examinations in this subject since the formation of the Territorial Force," especially in the work of officers of howitzer brigades. The examiner observes that "as any question on the application of the angle of sight always seems to present difficulties to a large number of candidates, it may help future candidates and their instructors to call attention to this weak point." The examination also showed a very great advance in knowledge of animal management, questions on which have always been badly answered in previous examinations. No candidates presented themselves for the examination in Wireless Telegraphy (B. 10). It is not intended to set another paper in this subject until a syllabus has been laid down.

Coming to the report of the examiner on Infantry Training, we read that "the number of failures is unsatisfactorily high, especially bearing in mind the number of candidates who have qualified by obtaining the minimum marks required." Moreover, the answers showed an "apparent lack of appreciation amongst young officers of the vital importance of grasping the principles of infantry training." The following remarks on two of the questions are quoted from the report, together with the questions they refer to:—

Question 4. Your company is the left flank company of a battalion attacking across open, undulating country, admirably adapted for the employment of Cavalry.

(*a.*) Where would you expect a cavalry charge to come from? Give your reasons.

(*b.*) What steps would you take to guard against a Cavalry charge?

(*c.*) In the event of the enemy delivering a Cavalry charge, what would you do to defeat it?

(*d.*) At what stage of the attack would you be most apprehensive of a charge?

(*e.*) Under what exceptional circumstances only would you be anxious as to the result of a charge?

(*f.*) What should be impressed on every foot soldier as to the relative merits of fighting on foot and on horseback?

*Remarks by the Examiner*:—The answers, on the whole, were disappointing.

(*a.*) Was generally well done.

(*b.*) Was generally well done.

(*c.*) The majority of the candidates said that they would form the company to the exposed flank, closing, fixing bayonets, and opening fire as if it was a parade movement. It did not seem to occur to them that the leading half company, at any rate, would probably be so closely engaged in a fire fight that it would be impossible to form or close, although in answer to (*d*) the same candidates gave as their replies, "at the last stage of the attack," "just before the assault," or some other similar expression.

(*d.*) The answers to this varied from those quoted above to such answers as "at the commencement of the attack," "when the company is still in close order," "when it would be difficult to beat off the attack."

Only a very small number of candidates seemed to grasp the fact that the time of apprehension is the critical stage which every hard-fought infantry fight *must* go through when the men are well nigh worn out with long physical and moral strain. Success and failure then hang evenly in the balance. During such moments it will be the duty of the officers with the firing line to do their utmost to provide the necessary moral stiffening, those on the flanks adopting special precautions against a cavalry charge taking the weary and exhausted firing line by surprise.

(*e.*) This was fairly well answered on the whole.

(*f.*) Most candidates are inclined to lay too much stress on infantry being able to lie down and avoid the worst effects of a successful charge, and not enough on those qualities which should render infantry impervious to a charge by defeating it at a distance. Confidence in himself and his rifle is the infantryman's greatest asset when opposed to charging cavalry.

---

Question 8. "Both in attack and defence the most intimate co-operation between the Artillery and Infantry must be aimed at if the latter are to derive full advantage of the support of the former." (Infantry Training, Section 135.)

State briefly how this co-operation should be carried out during the various stages of the attack.

*Remarks by the Examiner*:—This was very disappointing. Candidates wrote a good deal, quoting such terms as "co-operation," "artillery duels," "silencing the enemy's guns," &c., but hardly any showed that they grasped what is meant by co-operation, viz., that the advance of the infantry draws the enemy's fire, making him expose his position, thereby giving their own artillery a target to fire at, &c., as is so clearly expressed in Section 138, Infantry Training. The old idea of a prolonged preliminary artillery duel prior to the advance of the attacking infantry appears to be very popular amongst candidates.

# NAVAL NOTES.

## BRITISH EMPIRE.

### Home.

The following are the principal appointments which have been made:—Captains.—F. G. St. John to *Hecla*, E. G. Barton to *New Zealand*, E. L. Botty to be Master of the Fleet from June 1st to July 1st, 1911; P. Vaughan Lewes, D.S.O., to *Commonwealth;* W. Henderson to *Diamond*, and in Command of Third Destroyer Flotilla; G. L. Sclater, to *Euryalus;* E. G. Lowther-Crofton, D.S.O., to *St. George;* C. Greatorex to *Natal;* A. R. Hulbert to *Venus;* R. E. Benson to *Cæsar;* I. D. Gilpin-Brown to *Hercules;* E. P. Grant to *Falmouth.*

The first-class battleships *Temeraire* and *Superb* paid off at Portsmouth on the 15th and 29th ult., respectively, both recommissioning the following days for a further term of service in the first division (1st Battle Squadron) of the Home Fleet. The first-class battleship *Exmouth* arrived at Portsmouth on the 30th ult. from the Mediterranean; she paid off on the 6th inst., recommissioning on the following day for a further term of service as flagship of Admiral Sir E. Poë, K.C.B., K.C.V.O., Commander-in-Chief in the Mediterranean, and left again on the 10th inst., for her station. The first-class battleship *Commonwealth*, commissioned on the 6th inst. for service with the Nore Sub-division of the Third Division of the Home Fleet. She takes the place of the *Bulwark* and thus materially strengthens the Sub-division; she is the second ship of the *King Edward VII* class to be so transferred, her sister ship the *Africa* having recently assumed the duties of flagship of the Commander-in-Chief of the Third Division.

The first-class armoured cruiser *Leviathan*, flagship of Rear-Admiral E. E. Bradford, C.V.O., Commanding Fourth Cruiser Squadron, paid off at Chatham on 15th ult., recommissioning the following day for a further term of service as flagship of the Squadron; the first-class armoured cruisers *Berwick* and *Donegal* paid off at Chatham and Devonport on the 15th and 22nd ult., respectively, and recommissioned on the following days for a further term of service with the Fourth Cruiser Squadron.

The second-class cruiser *Æolus* commissioned at Devonport on the 23rd ult. to take the place of the *Scylla* on the West Indies and North American Station and left on the 29th ult. for her station. The second-class cruiser *Hyacinth* arrived at Plymouth on the 11th ult. from the East Indies, and proceeded to Chatham, where she paid off on the 2nd inst. The second-class cruiser *Scylla* arrived at Sheerness on the 15th ult. from the North American and West Indies Station, and paid off on the 24th ult. at Chatham. The new second-class cruiser *Glasgow* has been detached from the Second Division of the Home Fleet for service on the East Coast of South America, where she will relieve the third-class cruiser *Amethyst*, and left on the 15th ult. for her station. The third-class cruiser *Medea* arrived at Plymouth on the 10th ult. from the Mediterranean, paid off on the 15th ult. at Devonport and recommissioned on the following day for a further term of service on the station, leaving Plymouth again on the 20th ult. for Malta.

HOME—*continued.*

The destroyers *Ardent, Banshee, Boxer, Bruiser* and *Dragon* have been withdrawn from the Mediterranean Station where they have been serving continuously for more than 15 years; they are among the earliest of this type of vessel that were constructed and were all launched in 1894; their places are being taken by the *Colne, Chelmer, Garry, Jed* and *Welland*, five of the so-called River class, which were launched in 1904, have twice the displacement and carry four 12-pounders as against one 12-pounder and three 6-pounder in the earlier vessels. The *Colne, Jed* and *Garry* left on the 29th ult., for Malta, and have since been followed by the *Chelmer* and *Welland*.

*Naval Battle Practice, 1910.*—The result of the battle practice of the Fleet in 1910, has been issued as a Parliamentary Paper (Cd. 5592). In a prefatory note the Admiralty state that the conditions of the practice differed considerably from those of former years, so that no comparison can be made. The following is an abstract of the results:—

First in order of merit, Australian Squadron; 5 ships, with 55 guns; average points made, 212.6. First ship *Pyramus*, with a score of 333.2 points, and *Prometheus* second, with 287.6 points.

Second in order of merit, 3rd Division Home Fleet, 10 ships, with 132 guns; average points made, 192.5. First ship, *Carnarvon*, with a score of 306.7 points, and the *Magnificent* second, with 275 points.

Third in order of merit, China Squadron, 6 ships, with 76 guns; average points made, 185.1. First ship, *Minotaur*, with a score of 430.9 points, and *Astræa* second, with 195.9 points.

Fourth in order of merit, 2nd Division Home Fleet and 2nd Cruiser Squadron; 14 ships, with 202 guns; average points made, 184.0. First ship *Africa, with* a score of 313.9 points, and *King Edward VII*, second, with 302.3 points.

Fifth in order of merit, 1st Division Home Fleet and 1st Cruiser Squadron; 11 ships, with 122 guns; average points made, 179.6. First ship, *Agamemnon*, with a score of 316.3 points, and *Invincible* second, with 286.0 points.

Sixth in order of merit, Atlantic Fleet and 5th Cruiser Squadron; 9 ships, with 135 guns; average points made, 159.6. First ship, *Formidable*, with a score of 577.3 points, and *Drake* second, with 164.4 points.

Seventh in order of merit, Mediterranean Fleet and 6th Cruiser Squadron; 13 ships, with 179 guns; average points made, 98.3. First ship, *Bacchante*, with a score of 191.1 points, and *Triumph* second, with 171.5 points.

Ships inside range (800 yards or over); None.

Ships outside range (800 yards or over); 6, with 90 guns; average points made, 93.6. First ship, *St. Vincent*, with a score of 195 3 points.

The total number of ships firing, 74, with 991 guns; and the average number of points made, 161.5

The ships on the Cape of Good Hope Station fired at a fixed target, the *Hermes* being first ship, with a score of 560.7 points, and the *Forte* second, with 400 points.

The following Gunboats also carried out battle practice, *Circe, Jason Speedy*, but no points were awarded.

HOME—*continued.*

Although the conditions under which the battle practice for 1910 differed somewhat from the conditions prevailing in previous years, it may be interesting to recall that in 1909 the China unit of the Eastern Fleet stood first with 348.68 as the average number of points, the *King Alfred* being first ship with a score of 510.4 points; but the ship with the highest individual score was the *Boadicea*, with 541.6 points to her credit, the Commodore's ship of the First Destroyer Flotilla.

## FOREIGN POWERS.

### Argentine Republic.

*New Turbine Destroyers.*—Early last year the Government called for tenders for the construction of 12 turbine destroyers, the first units of a powerful destroyer flotilla, which is to form part of the new naval programme. The English firm of Messrs. Cammell, Laird and Co. secured the contract for four of these vessels; the Germania Krupp Yard at Kiel two; the French Chantiers de la Brétagne (Nantes) four, and the Schichau Yard (Elbing) two. The following are the principal data in regard to these vessels:— The dimensions of the boats to be constructed by Cammell, Laird will be: Length, 292.9 feet; Beam, 27 feet 7 inches; Draught, 8 feet 6 inches, with a sea displacement of 1,175 tons. The turbine engines are to develop 20,000 I.H.P., to give a mean speed of 32 knots on a six hours' trial speed, with 60 revolutions. The fuel capacity is to be 225 tons of coal and 75 of oil.

The two to be constructed by the Germania Yard will have a length of 288 feet; a beam of 27 feet 1 inch; a trial displacement of 935 tons on a draught of 8 feet 2 inches; with the sea displacement of 1140 tons, the draught will be 9 feet 6 inches. The engines are to develop 19,500 I.H.P., giving a mean speed of 32 knots during the six hours' run on the trial draught. The fuel capacity will be 250 tons of coal and 110 of oil.

The two to be built by the Schichau firm will have a length of 295.2 feet; a beam of 29 feet 7 inches; a sea displacement of 1,110 tons on a draught of 9 feet 2 inches; the engines to develop 19,500 I.H.P., to give a mean speed of 32 knots on the six hours' trial run. The fuel capacity will be 290 tons of coal and 50 tons of oil.

The four to be built by the French firm will have a length of 280.7 feet; a beam of 28 feet 2 inches; a sea displacement of 1,170 tons on a draught of 10 feet 2 inches; the engines to develop 19,000 I.H.P., to give a mean speed of 32 knots on the six hours' full speed trial. The fuel supply will be 256 tons of coal and 82 tons of oil.

The system of turbines adopted will be the Curtis, driving twin-screws. Though the projected motive power varies between 19,500 and 20,000 I.H.P., it is expected that the actual full power developed at the steam trials will be 22,000.

The armament of all 12 destroyers will be identical, viz., four 4-inch 50-calibre Q.F. guns, the ammunition supply for which will be 250 rounds and they will also all be fitted with four tubes to discharge the new Whitehead 21-inch torpedo, which carries a charge of 331 lbs. of gun-cotton, and has a speed of 41 and 29 knots at a range of 2,000 and 5,000 yards respectively. They will have a complement of 110 officers and men.

The radius of action of these destroyers will be considerable; with an

average of 250 tons of coal and 80 to 100 tons of oil, they will be able to steam practically 3,300 to 3,500 miles at 14 to 15 knots, which will enable them to operate not only away from their home bases in the South Atlantic, but in the South Pacific as well. *Engineer* and *Le Yacht.*

## Austria-Hungary.

*General.*—The Evolutionary and Reserve Squadrons for 1911 have been constituted as follows:—

*Evolutionary Squadron.*

First-class battleships—*Erzherzog Franz Ferdinand* (Flagship of Rear-Admiral von Kunsti, Commander-in-Chief), *Radetzky, Erzherzog Ferdinand Max.*

First-class armoured cruiser—*Kaiserin und Königin Maria Theresia.*

Scout—*Admiral Spaun.*

Torpedo gun-vessels—*Magnet, Blitz, Komet.*

Torpedo Depôt ship—*Gaea.*

Destroyers—*Ulan, Velebit, Streiter, Wildfang,* and the sea-going torpedo boats *Kaiman, Kormoran, Schwalbe.*

*Reserve Squadron.*

First-class battleships—*Babenberg* (Flagship of Rear-Admiral Graf Lanjus, Commanding), *Erzherzog Karl, Erzherzog Friedrich.*

First-class armoured cruisers—*St. Georg, Kaiser Karl VI.*.

Third-class cruisers—*Zenta, Sziegetvár.*

Destroyers—*Huszar, Scharfschütze, Reka, Dinara,* and four sea-going torpedo boats (names not given).

The second-class cruiser *Kaiserin Elizabeth* has been commissioned for foreign service, and the river-monitors *Temes* and *Bodrog,* with the patrol boats, *d, e, f* and *g,* have been commissioned for service on the Danube.

The new first-class battleship *Zrinyi,* the last of the three battleships of the *Tegethoff* class to be completed, and which was launched on the 12th April last year from the Stabilimento Tecnico, Trieste, is approaching completion and will commence her acceptance trials in a few weeks. She has been built to take the place of the *Kronprinzessin Ehzherzogin Stephanie,* now in use as a gunnery training-ship, at a total cost of £1,780,000.

The new floating dock with a lifting capacity of 22,500 tons, which has been built at the Imperial Dockyard at Pola, was completed in April; her first use will be docking the *Viribus Unitis,* the first of the new battleships of the *Dreadnought* type, which is to be launched on the 24th inst., according to present arrangements, from the yard of the Stabilimento Tecnico, at Trieste.

The new Salvage-ship *Hercules,* a vessel of 1,500 tons displacement, has been commissioned at Pola for service, and the new submarine Salvage-ship, which is being built at the Danubius Yard, Fiume, is to be completed during the summer.

From the Whitehead Yard at Fiume was launched on the 14th March the third of the submarines for the Austro-Hungarian Navy, which have been constructed by this firm. The new submarine is of the improved *Octopus* type, has a length of 104 feet, a beam of 13 feet 3 inches, and when submerged a displacement of 274 tons; she is fitted with two periscopes of special construction, and will have a surface speed of 11 knots, which it is hoped she will be able to maintain when submerged.

AUSTRIA-HUNGARY—*continued.*

*The New Building Programme.*—The Minister of Marine, Admiral Count Montecuccoli, has secured the approval of both the Austrian and Hungarian Delegations, for the new building programme, the estimated cost of which will amount to £13,016,066, to be spread over a term of six years. The new programme provides for the construction of four large battleships of the *Dreadnought* type, which are to take the place of the four wooden corvettes *Donau, Erzherzog Friedrich, Dandolo* and *Saida;* although these vessels have long since disappeared from the navy list, it is of interest to recall their names, as they formed part of Tegethoff's second line at the battle of Lissa, 20th July, 1866, which was under the command of Commodore Petz; three cruisers to take the place of the *Frundsberg, Aurora* and *Zrinyi;* six large destroyers; twelve sea-going torpedo boats and six submarines. Two of the battleships were laid down early last year at the Stabilimento Tecnico, Trieste, the directors of the company offering to build at their own risk these two ships according to plans sanctioned by the Admiralty, as no funds had been voted for them in the estimates for the year. The offer was accepted by the Ministry of Marine, which will thus be able to obtain these ships, the Delegations having since approved of their construction at a much earlier date than would otherwise have been the case.

The third ship is to be laid down on the slip which is shortly to be vacated by the launch of the first of the group, and the fourth at the Imperial Dockyard at Pola. Two of the smaller ships will probably be built at the Danubius Yard, Fiume, a strong feeling existing in Hungary that she should have her share in the future work of construction, and the Hungarian Government having recently granted a subsidy of £125,000 to increase the capacity of the yard, although it will not be ready to undertake the building of large ships for probably another two years.

*The Naval Estimates for 1911.*—The Ordinary Naval Estimates amount to £2,673,433, as against £2,538,017 for 1910, showing an increase of £135,416. The Extraordinary Estimates amount to £190,615, as against £243,532 for 1910, showing a decrease of £52,917. The Estimates (Ordinary and Extraordinary) amount therefore to £2,844,048, as against £2,781,549 for 1910, an increase of £62,499. To these Estimates have to be added a sum of £2,291,666, being the amount granted for the year towards new construction, out of the special credit of £13,016,066 approved for the final development of the fleet; the total amount of the Estimates therefore amounts for this year to £5,135,714.

The following are the principal votes provided for;—

*Ordinary Estimates.*

*Permanent Expenditure* :—

Pay of Officers, etc., £248,377; Pay and Clothing Petty Officers and Seamen, £243,334; Land Service, £122, 336; Sea Service, £355,380; Shore Establishments, £35,643; Maintenance of Fleet, £414,913; Total, £1,499,983.

*New Construction, &c.* :—

First-class battleships—

1. *Erzherzog Franz Ferdinand* (*Ersatz Tegethoff*) of about 14,000 tons, fifth and final instalment out of a total vote of £1,095,333, £137,500;
2. *Radetzky* (*Ersatz Kronprinz Erzherzog Rudolph*) of about 14,000 tons, fifth and final instalment out of a total vote of £1,095,333, £179,166;

AUSTRIA-HUNGARY—*continued.*

3. *Zrinyi* (*Ersatz Kronprinzessin Erzherzogin Stephanie*) of about 14,000 tons, fifth and final instalment out of a total vote of £1,095,333, £166,666;

4. Scout Cruiser *Admiral Spaun* (*Ersatz Zara*) of about 3,500 tons, fourth and last instalment out of a total of £200,000, £8,333;

5. Twelve torpedo-boats of about 100 tons, fourth and last instalment out of a total vote of £200,000, £12,500.

Total, for new construction £504,165.

Armaments (guns, torpedo fittings, &c.) for above-named ships, £329,166.

Guns and small arms, £148,375.

Miscellaneous, £208,410.

*Extraordinary Estimates.*

Pay and Clothing, &c., £2,083; Shore Establishments, Charts, &c., £458; Refit and Reconstruction Work on the *Kaiserin Maria Theresia, Erzherzog Albrecht, Habsburg, Lussin, Huszar* and floating dock for Destroyers and Torpedo Boats, £47,500; Guns and Small Arms, Torpedo Fittings, Mines, &c., £27,500; Buildings, £90,008; Miscellaneous, £3,006.

*Extraordinary Credit for Development of Fleet.*

The programme for the expansion of the Navy includes the construction of the following new vessels :—

1. Four battleships (IV., V., VI., VII.) of about 20,000 tons displacement each, cost £10,000,000;
2. Three cruisers (G. H. J.) of about 3,500 tons each; cost £1,250,000;
3. Six torpedo vessels of about 800 tons displacement each; cost £750,000;
4. Twelve high seas torpedo boats; cost £500,000;
5. Submarines; cost £416,666.

Total cost of the whole programme, £13,016 066.

NOTE.—The above figures include the entire cost of armament and equipment.

The above sum is to be expended in yearly instalments as follows :—

| | | | |
|---|---|---|---|
| 1911 ... | £2,291,666, | 1914 ... | £2,833,333, |
| 1912 ... | £2,791,666, | 1915 ... | £2,041,666, |
| 1913 ... | £2,833,333, | 1916 ... | £208,333. |

The instalment of £2,291,666 allottted to 1911 is to be expended as follows :—

£1,191,666;

1. Battleship " IV. " first instalment out of a total vote of £1,541.666,
2. Battleship " V.," first instalment out of a total vote of £1,541,666, £1,016,666;
3. Battleship " VI.," first instalment out of a total vote of £1,541,666, £208,333;
4. Battleship " VII.," first instalment out of a total vote of £1,541,666, £208,333;

AUSTRIA-HUNGARY—*continued.*

5. Cruiser "G," first instalment out of a total vote of £685,000, £125,000;
6. Cruiser "H," first instalment out of a total vote of £685,000, £83,333;
7. Cruiser "J," first instalment out of a total vote of £685,000, £125,000;
8. Six Destroyers, first instalment out of a total vote of £685,000, £83,333;

For battleships "IV." and "V." out of a total vote of £983,333 for each ship for armament (guns, torpedoes and ammunition) first instalments of £195,833 and £158,333 respectively are allotted.

*Précis* from *Mittheilungen aus dem Gebiete des Seewesens, Marine Rundschau* and *Revue Maritime.*

---

**China.**

***Reorganization of the Chinese Navy and creation of a Ministry of Marine.***—In 1909 a Naval Commission presided over by Prince Tsai-Chen was sent to Europe to study the organizations of the leading Naval Powers and the best types of warships. The Prince was accompanied by Admiral Sah-Tchenping as his principal adviser.

Up to quite recently, the Navy, like the Army, has been organized in each province by the respective Viceroys; but in May, 1909, the Prince-Regent acting under the advice of Admiral Sah, determined to create a really national fleet.

The supreme command is vested in the Emperor, but he being a minor, it was assumed in his name by the Prince-Regent. Practically, the control over both Army and Navy was to be exercised by a Superior Council of War, presided over by Prince Tsai-Tao; the Council being assisted by a Naval Commission, at the head of which was placed Prince Tsai-Chen; the other members being the Minister of War, the Minister of Finance, the Duke Tsai-Tse, and Admiral Sah-Tchenping. In addition, the Viceroys of the Maritime Provinces of Pechili, Liang-Kiang, Min-Che, Liang-Kwang, and of Manchuria, were appointed extraordinary members. The Prince Tsai Chen was specially charged to report on all questions connected with Naval constructions, the choice of the types of warships, their armament and manning; to the Minister of War was entrusted all questions of organization; while Admiral Sah-Tchenping had charge of the Dockyards and Naval bases, the hydrographical Department, and certain questions connected with the *personnel.*

This organization is, however, now to be altered, for by an Imperial Edict of the 4th December last, a regular Ministry of Marine (*Hai-Kiun-pon*), has been created; His Highness Prince Tsai-Chen, younger brother of the Regent, and President of the previously constituted Naval Commission, being placed at its head, and an Under-Secretary of State, Tsang-Hsio-Hang, who has been for some time one of the Councillors to the Prince, has been appointed to assist him. Admiral Sah, who was one of the old Commissioners, has been appointed by a Decree of the 6th December, Commander-in-Chief of the Squadron of the Yangtse.

CHINA—*continued.*

According to report, the organization of the Ministry, in addition to a General Staff, will consist of nine sections, as follows:—

1. Centralization;
2. Administration;
3. Technical Department;
4. Law;
5. Defence of Coasts;
6. Medical;
7. Music;
8. Supply;
9. Accountant.

A new distribution of the Naval Forces is projected, comprising three squadrons.—

The Squadron of the North, or Peiyang;

The Squadron of the Centre, or the Yangtse;

The Squadron of the South, or the Koangtong.

The question of the Budget to be granted to the new Ministry so as to permit it to get to work, is not yet settled. At the meeting of the 26th November, the Committee of the Tse-tcheng-yuan, discussing the Budget with the representatives of the different Ministries proposed a reduction of 25 per cent. on the pay of the officers and men of the fleet. The Committee further demanded that a reserve fund should be constituted by reducing the money allotted for new constructions. The only new vessels, whose construction has been recently agreed to, are, according to report, two gunboats of 400 tons, to be built in Germany (one at Krupp's Germania yard), and two of 780 tons to be built in Japan; and certain amounts have also been allotted to the River Police and Customs troops.

In 1911, two training ships, building in England, are to be delivered. It is also announced that next year a certain number of students are to be sent for training to foreign Naval Schools.

The Chinese fleet at the present time is extremely weak. It consists, practically, of only four good comparatively-speaking modern cruisers, or, rather, scouts, constructed in 1897-98, viz.: the *Hai-Chi* (4,000 tons, and 24 knots speed, built at Elswick); the *Haï-Chen, Haï-Cheng,* and *Haï-Yung.* These three last were built by the Vulcan Yard, Stettin, and have a displacement of 2,950 tons, with a speed of 19.5 knots; the armament consisting of three 5.9-in., and eight 4-in. Q.F guns, with 12 small machine guns and 2 torpedo tubes. The armament of the *Haï-Chi* is much heavier, consisting of two 8-in. Q.F., ten 4.7-in Q.F., and twelve 3-pounder Q.F. guns, with ten small machine guns, and 5 torpedo tubes for 18-in. torpedoes. In addition, there are 3 older non-protected cruisers, with a displacement of some 2,300 tons, two of which were built by the Howaldt Yard, Kiel, and the third at the Foochow dockyard; 3 destroyers of 850 tons, and 23 knots speed, one built by the Vulcan Yard, Stettin, and two at Foochow, the engines being supplied by the Forges et Chantiers, at Havre, and some 12 gunboats of from 600 to 750 tons. Small as this fleet is, the dockyards barely suffice to keep it in order. Since the war of 1894, when the Chinese lost Port Arthur, the only dockyards have been the provincial ones at Whampoa, Foochow, Kiang-Nan near Shanghai and Nanking, which are all small and comparatively speaking, with the exception of Kiang-Nan, poorly equipped.

To remedy this unsatisfactory state of things, Prince Tsaï-Chen and Admiral Sah have prepared and submitted to the Emperor a scheme to be carried out progressively during the next seven years, providing for the

CHINA—*continued.*

construction of battleships, cruisers, destroyers and submarines. For the moment, all that has been decided is as follows:—

1. The existing fleet to be divided into the seagoing and river fleets, and to be strengthened during the next four years, at a cost of £5,362,500 by the following new constructions:—

3 Cruisers of 3,000 tons each;
1 Transport-Aviso of 2,000 tons;
8 Gunboats of 500 tons each;
1 large Destroyer of 850 tons.

2. A War-Harbour on an extensive scale is to be created in San-Mun Bay[1], with docks, basins, workshops, coal depôts, etc.; this new dockyard is to be connected with the interior by means of a railway, telegraphs, and telephones. It is intended to transfer the Naval College and training Establishments here in due course. A sum of £487,500 is to be devoted to the commencement of this new Naval Establishment.

3. The arsenal and dockyard at Kiang-Nan, near Shanghai, is to be reconstructed, and is to become the principal building yard of the fleet.

4. The provincial Naval Schools at Chefoo, Nanking, Foochow, and Whampoa are to be reorganized; the instruction given is to be brought up to date, special attention being paid to gunnery and torpedo training.

5. The system of training of specialists for different branches of the service, as in foreign navies, is to be reorganized.

6. The Maritime provinces are to be divided into recruiting districts, so as to facilitate recruiting for the fleet.

The new 3,000-ton cruisers are to be "scouts" of a similar type to the *Haï-Chen*, which was built at the Vulcan Yard.

With regard to the choice of a new Naval port, an attempt was first made to re-purchase Wei-haï-Wei from the English, but the price that was asked was considered too high. Among the places considered were: Tschin-Wan-tao in the Gulf of Pechili; Ki-Ang-Yin, on the Yangtse; Ting haï in the Chusan Archipelago; Tschin-Haï near Ningpo; San-Mun Bay; Foochow; the Boca Tigris or Whampoa in the Canton River, and Kuli-Kiang on the South coast of Haï-Nan. San-Mun Bay was at last settled upon, as fulfilling all the required conditions, and on the Governor of the Province (Che-Kiang) undertaking to connect San-Mun by a railway with Ningpo.

The placing of the Kiang-Nan Arsenal, near Shanghai, on a proper footing will not be a difficult matter. It is the best arsenal and dockyard in the Empire, being capable of producing 6-in. Q.F. guns, and of effectively repairing the present ships of the fleet.

Every effort is to be made to constitute an efficient corps of officers, who will have to be the instructors of the future, officers who will be as efficient and more devoted than those borrowed in former days from England and the United States.

With regard to the funds which will have to be found for the future Chinese Navy, a sum of £5,850,000 is required in the near future, of which £5,362,500 is, as already mentioned, to be devoted to new construction and £487,500 to the equipment of the dockyards. This sum is to be dis-

[1] San-Mun Bay is a fine anchorage lying to the south of Chusan Islands, and is distant about 100 miles from Shanghai.

CHINA—*continued.*

tributed over four years. During the first year there will only be expended £325,000 on the ports and £162,500 on new construction. For each of the following years there will be an expenditure of £1,625,000.

The necessary funds are supplied partly by the Minister of Finance, partly by the Governors of the Coast provinces, while a certain amount has been given by private persons. Thus the Governor of Chen-Kiang has presented £325,000 for the Navy, a rich Hong-kong merchant has given £65,000, while the mandarins of the province of Hupei have promised to provide annually, for seven years, £32,500 for the permanent expenses, and a further sum of £260,000 in four years towards the reconstruction of the fleet.

In addition, the Dowager Empress had promised an annual subsidy of £260,000, and a legacy at her death of £3,025,000 for the Navy.

These subsidies are interesting because they point to a revival of the national spirit, which, after a long slumber, showed itself in the Boxer rising of 1900, and again in 1906-07, when so severe a boycott was established against American and Japanese goods.

*Le Yacht* and *Revue Militaire des Armées Etrangères.*

---

**France.**

The following are the principal promotions and appointments which have been made:—

Vice-Admirals—H. A. Jauréguiberry to be President of the Lights Commission; M. P. de Fauque de Jonquières to be Inspector-General of Matériel. Rear-Admirals—P. Auvert to be Vice-Admiral; M. A. Cros to command of Algerian Naval Division; F. P. Moreau to be Chief of the Naval Cabinet of the Minister of Marine; F. A. Journet to be Chief of the Staff at Cherbourg. Capitaines de Vaisseau—F. A. Journet, F. P. Moreau, M. G. de Ramsey de Sugny to be Rear-Admirals; C. T. Charlier to be Assistant-Chief of the Staff at Cherbourg; L. E. Jochaud du Plessix to *Carnot;* A. H. de Spitz to *Jules Ferry;* A. H. Nissen to *Charlemagne;* I. I. M. Kéraudren to *République.*

*Journal Officiel.*

*General.*—Vice-Admiral de Fauque de Jonquières, Member of the Superior Council of the Navy, has been named Ambassador Extraordinary to represent the French Government at the Coronation of King George; he will be accompanied by General of Division Count Dor de Lastour, commanding the 3rd Cavalry Division, and Capitaine de Vaisseau Langier, Naval A.D.C. of the President of the Republic, with M. Maurice Herbette, First Secretary of Embassy.

Vice-Admiral de Marolles, Commander-in-Chief at Brest, has been selected to represent the French Navy at the Coronation Naval Review, and he will hoist his flag on board the new first-class battleship *Danton* for the occasion. The *Danton* has just successfully completed her gunnery trials; her armament, like her five sisters, consists of four 12-inch guns in pairs in turrets fore and aft, and twelve 9.4-inch guns in pairs in 6 turrets, two of which are forward and two aft, the guns firing over the foremost and after turrets from about 30 degrees before and abaft the beam respectively, the other two turrets being on each beam. Seventeen rounds were fired from the 12-inch guns, the time of loading, not including closing and opening the breech, averaging 20 seconds per round; the average time of loading the 9.4-inch guns, which fired 25 rounds, was 12

FRANCE—*continued.*

seconds. These results were considered very satisfactory. The *Danton* commissioned at Brest on the 1st inst.

Vice-Admiral Auvert, promoted to that rank on the 28th March last, has gained his final step—there are no Admirals in the French Navy—at what is comparatively speaking the early age of 58, his birthday having occurred six weeks before his promotion. As a Rear-Admiral he commanded the Cruiser Division of the 2nd Squadron and is at present Chief of the General Staff of the Navy. Rear-Admiral Journet on the other hand, who is one of the last promotions to his rank, only obtained his flag, when within a few weeks of being 58, while Rear-Admiral Moreau, also promoted the same time, is only 53 and is the youngest officer but one on the flag list.

The Examining Commission for the admission of Candidates to the *École d'Application d'Artillerie Navale* will consist of :—

A Vice-Admiral (President);
The Director and Assistant Director of the School;
Four examiners nominated by the Minister of Marine.
Vice-Admiral Germinet has been appointed president for 1911.

The French Senate has returned the *Projet de loi* relative to the construction of the two new battleships to the Chamber of Deputies with certain alterations modifying Table A *Systémes de Chaudières,* and striking out the amendment of M. Justin Goddart, one of the Deputies, which had been passed by the Chamber directing the Minister of Marine not to conclude contracts with any private firms having on their directorate or being in any way controlled by Members of Parliament. To avoid a conflict with the Senate, M. Goddart has agreed to accept certain alterations to his amendment. The Minister of Marine stated that the Government did not intend to intervene in the matter which concerned the dignity of Parliament only.

*Steam Trials.*—The first four battleships of the *Danton* class, viz., the *Danton, Condorcet, Diderot* and *Voltaire* have now all concluded their trials and are ready for commissioning, while the two others, the *Mirabeau* and *Vergniaud* are now carrying out their trials and are expected to be ready for service in a few weeks. The following were the trials carried out :—A ten hours' trial at full speed with all the boilers alight : a three-hours' trial at full power with three-quarters of the boilers alight but a coal consumption allowed up to 396 lbs. per square metre of grate as against 130 in the first case; two coal consumption trials, one with half the boilers, the other with a fourth of the boilers, under natural draught, with speeds of 14 and 9 knots respectively. All the ships are fitted with turbine engines. For the ten hours' trial, a speed of 19.2 knots had to be maintained, with the engines not making more than 300 revolutions, and a maximum coal consumption of 2130 lbs. per mile. These conditions were more than fulfilled, as the following table shows :—

| *Ship.* | *Speed.* | *Coal Consumption.* |
|---|---|---|
| "Condorcet" | 19.25 | 18·75 tons. |
| "Danton" | 19.44 | 18·50 ,, |
| "Diderot" | 19.48 | 18·25 ,, |
| "Voltaire" | 19.71 | 18·25 ,, |

These were not the maximum speeds of the four ships. At the three hours' full speed trials, the *Condorcet* made 19.8, the *Diderot* 19.9; the

FRANCE—*continued.*

*Danton*, 20.18 and the *Voltaire* 20.66. In the *Voltaire* the shaft-power developed was 29,650, which was 7,150 over the contract, while the number of revolutions was 332 per minute.

In the twenty-four hours' trial each of the four ships maintained a speed of over 18 knots, in place of the 17.5 stipulated for in the contract, the coal consumption being only 12 cwt. 100 lbs. per mile, as against 14 cwt. 41 lbs. allowed by contract. At the fourteen and nine-knot trials, the coal consumption was 6 cwt. 111 lbs. as against 7 cwt. 97 lbs. allowed.

The turbines worked well, but, as was predicted, the coal consumption proved larger than with reciprocating engines. At the full speed trial when the *Voltaire* made 20.66 knots the consumption per shaft-power per hour was 1.98 lbs., the corresponding consumption of the *Verité* with reciprocating engines and making 19.26 knots was only 1.8 lbs. per horse-power per hour, while with the *Edgar-Quinet*, making 23.8 knots the consumption was only 1.67 lbs. It was the same when the ships were running at low speeds; at 14 knots the consumption per mile was 881 lbs., representing almost 1.43 lbs. per shaft-power per hour, as against about 1.1 lbs. in vessels fitted with reciprocating engines. Nevertheless, in spite of a greater coal consumption the advantages of the turbines cannot be gainsayed, while with more experience the coal consumption will probably be reduced.

*New Ships.*—The following are the chief data of the *Mangini* destroyer under construction in Schneider's yard at Chalons sur Saône: period of construction 26 months; displacement, 804 tons; length, 255 feet; beam, 25½ feet; two turbines of the Schneider-Zoelly type by Creusot, and 4 of the Temple-Kessel for oil fuel; storage for oil fuel 1-65 cubic metres; horse-power 15,800; speed 30 knots; armament, two 10-cm., and four 6.5 cm. guns, 4 torpedo tubes (twin tubes), 6 torpedoes of 45 calibre; crew 6 officers and 81 men.

The following are the chief data of the *Cimeterre* destroyer, launched on the 13th April, at Bordeaux, from the Chantiers de la Gironde; displacement, 730 tons; length, 253 feet; 2 turbines of 13,500 horse-power; speed, 31 knots, other data as for the *Mangini*.

In the Gironde yards a vessel, to be named the *Kangreoo*, is being built specially for the purpose of transporting the submarines constructed by the Petit-Creusot firm (at Chalons-sur Saône) to their destination. Her dimensions are: length 315 feet; beam, 39 feet; draught 22 feet; displacement, 5,540 tons. The submarines will be taken on board through an opening in the forward part of the ship.

A mine vessel, the *Cerbère* is to be built at Cherbourg as a sister ship to the *Pluton*.

*Submarines.*—As a result of the accident to the submarine *Loutre* (which sank after being in collision with a trawler on the 16th March, when cruising with her periscope above water, and was only able to rise to the surface after releasing the safety weight), it has been decided to equip submarines with sirens in order to enable them to warn other vessels of their existence.

The submersible *Brumaire*, of the *Pluviose* type was launched at Cherbourg on the 29th April.

At the end of March, some interesting mobilization exercises were carried out from Toulon, by 11 submarines.

FRANCE—*continued.*

The attacking force consisting of 6 submarines, was despatched to a point representing a hostile port, 60 nautical miles distant from Toulon. Starting from this point the submarines appeared in front of Toulon with a view to blockading the harbour. By night they rose to the surface to charge their accumulators, by day they continued submerged. Five torpedoes, of which four were hits, were fired at the *Admiral Tréhouart*, which attempted to break the blockade. During March attacks by submarines were carried out against the IInd Squadron, which was defended by destroyers in front and on the flanks. The submarines were hindered in their work by heavy squalls; on the other hand these conditions helped them to avoid the notice of the destroyers when delivering their attack. *Le Yacht, Le Temps,* and *Marine Rundschau.*

---

# MILITARY NOTES.

## British Empire.

### THE KING.

On the 1st May, at noon, the King presented a new State colour to the King's Company of the Grenadier Guards.

On the 16th May, the King unveiled the Queen Victoria Memorial in the presence of the Queen, the German Emperor and Empress, the Princess Louise, and most of the other members of the Royal family. A deputation from the 1st Dragoons of the Guard, the Prussian regiment of which Queen Victoria was honorary Colonel, was also present. After the ceremony representative detachments of the Navy and Army marched past the Memorial.

The King has appointed His Imperial and Royal Highness the Crown Prince of the German Empire to be Colonel-in-Chief of the 11th Hussars.

The German Emperor has appointed the King to the rank of Field Marshal in the German Army.

The King of Spain has appointed the King to be Colonel-in-Chief of the Zamora Infantry Regiment.

Deputations from the following foreign regiments will attend the Coronation :—

*Germany* :—The 1st Dragoon Regiment of the Guard; The Hussar Regiment Fürst Blücher of Wahlstatt; the Cuirassier Regiment Graf-Gessler (Rheinisches).

*Austria-Hungary* :—The 12th Field Howitzer Regiment.

*Spain* :—The 8th Zamora Infantry Regiment.

## Home.

### VETERAN RESERVES.

On May 20th Lord Roberts inspected 2,246 of the Surrey Veteran Reserve at Guildford. The total enrolled strength of the corps on that date was 96 officers and 3,101 men, organized in 14 companies.

In the course of his address to the men, Lord Roberts paid a tribute to the services rendered by Mr. St. Loe Strachey, and General Sir E. Ellis in connection with the organization of the Surrey Veterans.

HOME—*continued.*

Field Marshal Sir Evelyn Wood, has issued an appeal to the counties round London to follow the example of Surrey, and to make known to their resident ex-soldiers the importance of registering their names for service in case of national emergency.

TRAINING ARRANGEMENTS FOR REGULAR TROOPS IN 1911.

*Aldershot Command.*

*1st Cavalry Brigade*:—Brigade Training, July 13th to August 12th near Aldershot. Divisional Training, September 4th to September 15th near Cambridge. Inspection of Cavalry Division by I. G. Forces 7th to 9th September. Army manœuvres, September 18th to September 21st.

*1st and 2nd Divisions*:—Brigade Training, July 1st to July 16th near Aldershot. Divisional Training, July 17th to August 12th near Aldershot. Interdivisional Manœuvres, September 11th to September 16th in Norfolk, Cambridgeshire, and Suffolk. Army Manœuvres, September 18th to September 21st.

*Eastern Command.*

*2nd and 4th Cavalry Brigades*:— Brigade Training, 2nd Cavalry Brigade August 16th to September 1st on the Sussex Downs. 4th Cavalry Brigade, August 13th to September 3rd on Salisbury Plain. Divisional Training, September 4th to September 15th near Cambridge. Inspection of Cavalry Division by I. G. Forces, 7th to 9th September. Army Manœuvres, September 18th to September 21st.

*4th Division (10th, 11th, 12th Infantry Brigades)*:—Brigade Training August 19th to September 2nd at Aldershot. Divisional Training, September 4th to September 13th at Aldershot. Army Manœuvres, September 16th to September 21st.

*Southern Command.*

*18th Hussars*:—Attached to 4th Cavalry Brigade, Eastern Command.

*3rd Division (7th, 8th, 9th Infantry Brigades)*:—Brigade Training, August 13th to August 29th on Salisbury Plain. Divisional Training, September 5th to September 14th on Salisbury Plain. Army Manœuvres, September 16th to September 21st. Inspection of 3rd Division by I. G. Forces, 11th to 14th September.

*London District.*

*Household Cavalry Brigade*:—Divisional Training, September 4th to September 15th near Cambridge. Army Manœuvres, September 16th to September 21st.

*4th Infantry Brigade (Foot Guards)*:—Brigade Training, September 4th to 9th, in the Manœuvre Area. Divisional Training, September 11th to 16th, with the 2nd Division in Norfolk, Cambridgeshire, and Suffolk.

*Irish Command.*

*3rd Cavalry Brigade*:—Brigade Training, July 24th to August 13th at the Curragh. Divisional Training, September 18th to September 23rd near Glen Imaal.

*5th Division*:—Brigade Training: 13th Infantry Brigade, September 11th to 16th at Shillelagh, 14th Infantry Brigade, September 5th to 17th at Colbinstown, 15th Infantry Brigade, September 4th to 13th at the Curragh. Divisional Training, September 18th to 23rd near Glen Imaal. Inspection of 5th Division by I. G. Forces 25th to 26th September.

HOME—*continued.*

*6th Division*:—Brigade Training, 16th Infantry Brigade, August 28th to September 10th south-west of Fermoy, 17th Infantry Brigade, August 28th to September 10th near Kilworth. Divisional Training, September 11th to 23rd near Kilworth.

*Northern Command.*

*2nd Dragoons*: *Royal Scots Greys*:—Divisional Training, September 4th to 15th near Cambridge. Army Manœuvres (with the Composite Mounted Brigade), September 18th to September 21st.

*18th Infantry Brigade*:—Brigade Training from September 4th to 9th at Rhyader. Medical Manœuvres, August 24th to 26th at Rhyader.

*Army Manœuvres.*

Army Manœuvres, in which troops of the 1st, 2nd, 3rd, Divisions and the London District, and the Scots Greys from the Northern Command will participate, will be held between September 18th and September 21st in the area comprising portions of the counties of Norfolk, Suffolk, Essex, Hertford, Huntingdon, Bedford, and Cambridge.

The following appointments have been made:—Lieut.-Gen. Sir B. M. Hamilton, to command the "Red" force; Lieut.-Gen J. M. Grierson, to command the "Blue" force; Lieut.-Gen. Sir H. L. Smith-Dorrien, Chief Umpire "Red Force; Gen. Sir C. W. H. Douglas, Chief Umpire "Blue" Force.

THE TERRITORIAL FORCE.

The following Territorial units will take part in the Manœuvres in the neighbourhood of Cambridge in September:—2nd West Riding Brigade, R.F.A.; 1st and 2nd West Riding Field Companies, R.E.; West Riding Divisional Telegraph Company, R.E.; 6th (Cyclist) Battalion Norfolk Regiment; Essex and Suffolk Cyclist Battalion; Liverpool Infantry Brigade; Liverpool Brigade Company, West Lancashire Divisional Transport and Supply Column; 2nd West Lancashire Field Ambulance.

The results of the musketry training of the Territorial Force in 1910 have now been published. There has been a considerable improvement in this branch of training, during the past 12 months, especially as regards the number of battalions which performed field practices. The following figures show the numbers tested and qualified:—

| | Number Tested. | | Number Qualified. | |
|---|---|---|---|---|
| 1909 | Recruits ... | 65,721 | 25,433 | |
| | Trained men | 107,545 | 81,218 | |
| | | | On Open Range. | By attendance |
| 1910 | Recruits ... | 66,624 | 36,089 | 24,430 |
| | Trained men | 113,096 | 90,672 | 18,348 |

CADET UNITS.

The policy of the War Office in regard to recognized Cadet units was set forth a year ago in a circular memorandum to the County Associations, to whom the whole business of forming and administering Cadet units was handed over. The local Military authorities were to have no direct responsibility for their organization or training, but it was provided that Cadet units officially recognised by their County Associations should be inspected once a year under arrangements made by the General

HOME—*continued.*

Officer Commanding-in-Chief. No standard of efficiency was laid down, but the issue of a grant from Army funds (£5 per annum for each authorized Cadet Company) was to depend on the inspection showing that a spirit of loyalty, discipline, and smartness prevailed in the unit, and that the conditions laid down by the Army Council had been fulfilled. The Military authorities offer certain privileges to all bodies of lads accepted by the County Associations. Any body of lads exceeding 30 in number, that is trained in elementary Military exercises, and fulfils certain simple conditions, is eligible for recognition.

Twenty-six out of 94 County Associations have raised Cadet units, the total number of the latter recognized at the end of April, being 79 (including the 6 old Cadet battalions). These 79 Cadet units are organized in 176 Cadet companies, the total strength on the 30th April, 1911, being 349 officers, and 9,932 other ranks. When it is remembered that the strength of the Cadets on 21st May 1910, the date on which the new regulations came into force, was only some 170 officers and 5,000 other ranks, it will be seen how rapidly the movement is developing.

On the 25th May, a special Army Order was issued announcing that the King had been graciously pleased to present a Challenge Shield for miniature-rifle shooting, to be competed for annually by members of Cadet units officially recognized by their County Associations. The competition, which will be known as the "King's Shield Competition," will, as a rule, take place on "King's Birthday," but this year September 23rd has been fixed as the date.

Every officially recognized Cadet squadron, battery, or company, will be allowed to enter one team of Cadet N.C.Os. and Cadets, all of whom must be under 17 years of age on the day on which the competition is fired, and must have been posted to the squadron (battery or company) for at least three months before the date of firing, unless the unit has not been formed for that time.

The Challenge Shield presented by His Majesty will be held by the Cadet unit to which the winning team belongs until the result of the following year's competition is announced. In addition, the members of the first and second teams will receive silver and bronze badges, respectively, which will become their own property, and will be worn on the right forearm as long as the recipients serve as Cadets in a recognised Cadet unit.

AERONAUTICS.

On May 12th the Parliamentary Aerial Defence Committee organized a flying demonstration, to which all officers on the active list were invited as guests, on the aerodrome at Hendon. The tests included:—

Speed in erecting and dismantling aeroplanes (*a*) from transport wagon to actual flight; (*b*) from time of landing after flight to time of loading upon wagon ready for transport.

Despatch Carrying and Reliability Tests Across Country:—(*a*) Carrying despatch to Aldershot; (*b*) bringing back reply.

Distance Required for Rising and Alighting:—(*a*) Rising from ground in shortest possible distance; (*b*) alighting. Distance was measured from point of contact with ground to point where machine came to rest. Both monoplanes and biplanes were used in these tests.

Comparison of Speed between Monoplane and Biplane.

Bomb Throwing:—(*a*) By aeroplanes at high speed (at moderate

HOME—*continued.*

height; (b) from aeroplanes hovering in circles at greater height; (c) dropping a missile weighing 100lb. from a biplane.

Reconnaissance Test with Officers as Observers.

As a result of the above tests a deputation of some 60 members of the Parliamentary Committee visited the War Office on the 24th May and were received by Lord Haldane. The Chairman of the Committee urged the necessity for utilizing existing civilian agencies for training airmen, and for giving financial encouragement to men in the Army who wished to learn flying. They further urged that the Government should give encouragement to manufacturers, and pointed out the necessity of having an adequately trained corps of mechanics.

Lord Haldane, in his reply, pointed out that the subject of aerial science was still in a state of evolution, and that it was therefore desirable to move cautiously. He admitted that our Army and Navy were behind the armies and navies of foreign countries in regard to the number of people who were actually engaged in flying. But, he observed, unless they had a big volume of public activity in these matters they did not get a big body of official activity; he quite agreed that it was desirable to get all the civilian element possible; steps had already been taken to bring this about; in regard to encouraging the manufacture of aeroplanes, the War Office would not lose sight of the idea of giving prizes for designs offered. They were progressing, he thought, but they wanted to get the first principles solved before they embarked upon any particular scheme with any particular machine.

The deputation was afterwards received by Mr. McKenna, who, in reply, asked the Committee to remember that the Admiralty had devoted itself to experiments with the dirigible, not because the possibilities of the aeroplane had been overlooked, but because by arrangement, the Army had undertaken the experiments with the aeroplane while the Navy had dealt with the dirigible.

---

The Army (Lebaudy) Airship was totally wrecked on May 4th at Farnborough, when descending after a trial flight.

---

**Canada.**

*Reorganization of Commands.*—The Canada Government Gazette dated April 29th, 1911, promulgates an order reconstituting the 4 military commands in Eastern Canada so as to form 6 divisional areas providing 6 infantry divisions and 4 cavalry brigades. To each divisional area will be appointed an officer to command the infantry division, and in addition to command and administer such other units as may be quartered in the divisional area.

A General Staff Officer (2nd grade) will be appointed to the staff of each divisional area.

The fortress of Halifax within the 6th divisional area will be commanded by a selected officer. The military districts of western Canada, Nos. 10, 11 and 13, will remain for the present as district commands.

This reorganization was recommended by General Sir John French after his recent tour of inspection in the Dominion.

BRITISH EMPIRE—*continued.*

### India.

*The Expedition against the Gun Runners*:—Admiral Slade's expedition landed at Galag on the Mekran coast on the 11th April and marched inland, a party proceeding as far as Binth. The Afghans retired northwards but no arms were found; the troops were re-embarked at Galag on the 21st April.

On the 25th April the troops landed at Sirik on the Biyaban coast to operate against Mir Barkat Khan, the chief instigator of gun running in that district. Some fighting ensued and a few arms were recovered. The expedition left the Gulf on the 4th May and was de-mobilized on return to India.

---

## FOREIGN POWERS.

### Austria-Hungary.

*Manœuvres in 1911*:—According to statements in the Austrian press large Cavalry manœuvres, in which 12 Cavalry Regiments will take part, will be held this year near Grodek in Galicia. The Cavalry will be exercised in brigades prior to the manœuvres. Réconnaissance work will be carried out on a large scale; communication between reconnoitring detachments and the main body will be kept by cavalry telegraph sections, formed partly from the personnel of the telegraph school at Tulln.

*New Law of Military Service*:—The difficulties which stood in the way of the introduction of the 2 years' term of colour service, followed by 8 years in the reserve, have at length been overcome. The annual recruit contingent is in future to be 212,000 men.

The changes in organization consequent upon the introduction of the new law are not yet fully known but it is probable that they will include the following:—

*"Common" Army.*—The peace establishments of infantry units are to be raised and a special corps is to be formed to carry out certain garrison and barrack duties. The number of "employed" men will thus be diminished and training of all ranks facilitated.

*Austrian and Hungarian Landwehrs.*—The peace establishment of infantry companies is to be raised from 50 to 90 men.

Nothing is yet known regarding new formations in the Austrian *Landwehr*, but it is stated that the following new units will be raised in the Hungarian *Landwehr*:—

4 new infantry regiments.
2 new cavalry regiments.
1 horse artillery brigade, besides several howitzer batteries, which will later be formed into howitzer brigades.

It is hoped that when full effect has been given to the changes consequent upon the introduction of the new law, Austria-Hungary will be able readily to mobilize 2,000,000 men.

*Mountain Artillery*:—Mountain Artillery Regiment No. 7 has been formed from the detachment of Mountain Artillery Regiment No. 6 stationed in Dalmatia. The headquarters are to be at Ragusa and the ammunition park cadre will be stationed at Castelnuovo.

The 25th mountain gun and 6th mountain howitzer batteries with the 15th and 16th Army Corps have been formed into 4 divisional regiments of artillery.

## Belgium.

*Manœuvres in 1911* :—Manœuvres lasting from the 24th to 31st August (including period of concentration etc.), will be carried out by the 3rd and 4th Divisions, and the 2nd and 3rd Cavalry Brigades.

Fortress manœuvres will be held from the 4th to 8th September at Antwerp, Liège, and Namur.

---

## France.

M. Berteaux, the able Minister for War, was killed at Issy on the 21st May by the fall of an aeroplane. General Goiran, formerly Commander of the 6th Army Corps, has been appointed Minister for War in his place.

*Manœuvres in 1911* :—The following are the arrangements for manœuvres during 1911 :—

| *Date.* | *Place.* | *Corps.* |
|---|---|---|
| 5th to 20th Sept. ... | Army Corps Region | All Army Corps except 1st, 6th, 7th and 17th. |
| 1st week September | Camp de Mailly, near Chalons | 39th Infantry Division; 1st and 7th Cavalry Divisions. |
| 30th August to 5th September | near Lyon | 6th Cavalry Division; 14th and 15th Cavalry Brigades; 1st Infantry Divisions. |
| 27th August to 12th or 15th September | Camp de Mailly, near Chalons | 39th Infantry Division; 1st and 7th Cavalry Divisions. |
| 7th to 13th Sept. | near Vesoul | 7th Corps. |
| 11th to 14th Sept. | Region of Nantes | 11th Corps. |
| 4th to 10th Sept. | Near Crest, South of Lyon | 27th Division. |
| 11th to 15th Sept. | near Latour du Pin, s.e. of Lyon | 28th Division. |

## Marocco.

*The Situation at the End of April* :— The military situation at the end of April was as follows: On the Atlantic coast General Moinier, based on Casablanca, was in command of a force of some 16,000 French and native troops, and was being rapidly made up to a strength of 23,000 by reinforcements from Algeria and Tunis. A flying column under Colonel Brulard, and a Shereefian *Mehalla* of 1,500, under M'Rani had been sent as far as Kunitra (El Knitra on map) on the route to Fez, and was there engaged in accumulating supplies and forming an advanced base.

In the Gharb district (between Kunitra and Alcazar) Colonel Moreau was collecting supplies near Suk-El-Arba; with him were 800 troops, including 300 regular infantry.

MAROCCO—*continued.*

On the Algerian frontier a force of some 9,000 French and native troops under General Toutée were being concentrated on the River Muluya, on the line Taurirt-Debdu, the troops being brought up at the rate of 1,000 men a day from railhead at Zaid-El-Beghal.

In Fez Major Brémond and Colonel Mangin with some native irregulars, variously estimated at 4,500 to 7,000 were beleaguered by some 7,000 to 10,000 tribesmen, and were then believed not to be able to hold out beyond the middle of May, owing to lack of food and ammunition.

*The Approaches to Fez*:—South of Fez lie the Atlas mountains; to north lie the hilly districts of the Riff; to west a plain traversed by the Sebu River reaches to the Atlantic coast, interrupted by some isolated blocks of hill country about Dardzrari.

East of Fez this plain narrows, but continues past Taza as far as the River Muluya, forming a depression bounded on the north and south by hilly country. The most practicable routes to Fez are therefore those from the east and from the west.

There are four routes to be considered, none of which are more than caravan tracks:—

(1). The direct route from Rabat, south of the oak forest of Mamora and north of the Bou Ragrag, *via* Mequinez to Fez.

(2) The route from Mehedia, south of the marshes in the bend of the Sebu River and north of the forest of Mamora *via* Dardzrari to Fez.

(3) The route from Larache, crossing the Sebu River and joining route (2).

(3). The route from the Algerian frontier through the Taza depression to Fez.

Route (1) is the natural route to Fez, and leads over easy country, between the Sebu and Bou Ragrag Rivers. Unfortunately, this road is exposed on its southern flank to attack by the Zaer tribe living south of the Bou Ragrag River; again, the capture of Mequinez by the rebels made it probable that strong resistance would be met with in this road.

MAROCCO—*continued.*

Route (2) measured from Mehedia is only 106 miles; it possesses the advantage that the Sebu River is navigable for local boats almost up to Fez, while lighters of 30 to 60 tons can get up to Kunitra with the tide. (Kunitra to Fez, 99 miles). The port, has, however, a difficult bar, and at the beginning of May landing facilities were non-existent.

From Kunitra, the road, which skirts the northern edge of the forest of Mamora, leads over a level plain for 60 miles; the crossing of the river Beht, some 20 yards in width, is seldom difficult; the Beni-Hassen also inhabit this region and are a warlike tribe. On entering the Sherarda district the road gets into hilly country.

Route (3) suffers from the disadvantage of skirting mountainous country, inhabited by warlike tribes, lying north-east of it, and of crossing the Sebu River, at a point where it is still a formidable obstacle. It is true that, instead of crossing the Sebu, one may proceed up its right (north) bank almost as far as Fez, but this is impracticable after heavy rain.

Route (4) lies over level country from the Muluya as far as Taza, half way to Fez. West of Taza, the country is somewhat more hilly, while the mountains lying to north and south of the road would make the defence of the line of communications difficult [1].

*Political Considerations* :—A section of the Spanish press appeared to be suspicious of France, especially as regards the concentration of French troops on the River Muluya on the border of the area claimed as the Spanish sphere of influence.

From statements in the inspired press it appeared that Germany would not object to the advance of the expedition on Fez, provided that no permanent alteration was made in the *status quo.*

Public opinion in France was uneasy with regard to the critical position of Fez, and to the delay in the departure of Colonel Brulard's force; voices were raised in favour of an advance of General Toutée from the Algerian frontier, *via* Taza. The French government, however, adhered staunchly to their original plan; apart from geographical considerations, the objections to an advance from the east was that the tribes in the area traversed would have flown to arms; that General Toutée could in no case be ready to advance before the 8th or 10th of May; and that Spanish susceptibilities might be severely tried by an advance from this quarter.

The following outline of the operations during May is taken chiefly from the telegrams to the *Times* and the *Temps*; information on numerous points of detail is not yet available.

*A Supply Problem* :—The direct opposition to the advance on Fez from the Atlantic coast was not expected to be formidable. The problem for General Moinier was chiefly one of communications, transport, and supply.

It was estimated that if Colonel Brulard pushed on to Fez with 2,000 men, some 5,000 or 6,000 troops would be required to secure the communications between Fez and the coast. Further, it was necessary to carry sufficient supplies for the relief force and for the garrison of Fez, and to accumulate a reserve of supplies.

[1] A clear description of the routes and topography is given in *Questions Diplomatiques et Coloniales* of May 16th, 1911. The route eventually taken did not completely follow any of the 4 routes taken.

MAROCCO—*continued.*

The following causes delayed the advance:—

(1) The harbour of Mehidia, which was best situated for a port of disembarkation, was in such a state of disrepair that no use could be made of it at the outset. Everything had therefore to be disembarked at Casablanca, and even here, only one vessel a day could be unloaded. Stores had then to be transported by camels 62 miles along the coast to Rabat, crossing the Bou-Ragrag River 6 miles above that town, and another 18 miles to Kunitra, the advanced base. Early in May the port of Mehedia was opened up and tugs and lighters were sent there; it was still found best, however, to use this port chiefly for the disembarkation of stores, while personnel and animals landed as before at Casablanca.

(2) Many of the units were still without their war establishment of transport; some 2,000 mules and 1,000 camels were shipped from Algeria during the fortnight ending May 9th to complete deficiencies.

(3) The country up the south side of the River Sebu is poor, and the tribesmen had concealed whatever forage they possessed.

*Advance of the Relief Force.*—During the first week in May several attacks on convoys moving between Rabat and El Kunitra were made by 300 of the Beni Hassen tribesmen, issuing from the forest of Mamora. It became necessary to picket this road by sections of Colonial infantry stationed at intervals. The convoys, consisting of 500 camels, marched on a broad front, well closed up, with an escort of half a company of Algerian Tirailleurs and 1 troop of mounted Spahis. On the 7th May an attack was delivered on General Brulard's camp at El Kunitra.

On the 7th, 8th, and 9th May, Colonel Brulard's column, assisted by M'Rani's *Mehalla,* carried out numerous reconnaissances to the south and east, and into the borders of the Mamora Forest. The presence of a large hostile gathering was established at a point about 20 miles distant on the road to Fez.

On May 11th Colonel Brulard left Kunitra with 8 battalions of infantry, 4 squadrons of cavalry, and 4 batteries. A column 1,800 strong, under Colonel Gouraud followed in support. The Algerian Brigade (1,500 strong) reached Rabat on May 12th, and appears to have followed, together with General Moinier's headquarters, in rear of Colonel Gouraud's force.

Slight opposition was offered by the Beni Hassen, but on May 13th, the columns under Colonels Brulard and Gouraud were united at Lalla Itto, which lies in the plain about 30 miles east of Kunitra. On the same night at about 1.30 a.m. the French camp was attacked by the Zimmour and Beni Hassen, who crept up through the standing corn to 100 yards range. The French had to charge with the bayonet, but successfully drove off the attack, as well as a second one delivered at 5 a.m. After the relief force had started, M'Rani's *Mehalla* was moved to the north, into the Gharb country.

On May 16th General Dalbiez's column accompanied by General Moinier reached Lalla Itto, where a wireless telegraph station was established. A field telegraph line was laid from Casablanca to Rabat. Colonel Gouraud appears to have been left at Lalla Itto to organize a large supply convoy, which was to follow the relief force.

Meanwhile fighting continued daily in Fez, the most severe attacks taking place on May 4th, May 11th (in which the insurgents were said to have had 250 casualties) and on May 17th.

MAROCCO—*continued.*

The original orders issued by the French War Minister had been that the relieving column should advance as far as the hills overlooking Fez in order to establish communication with the French officers in the town and re-victual the garrison. On the 17th May, in consequence of an urgent appeal from the Sultan, the relief force was ordered to occupy the capital itself, but only so long as should be strictly necessary.

*Relief of Fez*:—Exact details of the route followed by General Moinier after leaving Lalla Itto are not available, but it appears that the column followed a line roughly east from Kunitra to the upper part of the Sebu River, thence *via* Mikkes Valley to Fez, which was reached on the 21st May.

The French force, numbering 8,000 including irregulars, marched up to the town with bayonets fixed and bands playing.

The Moors appear to have been greatly impressed by the rapid and irresistible advance of the French troops; the Beni Mtir broke up their camp and fled at the first appearance of the relieving column.

General Moinier advised the Maghzen to issue a proclamation giving the rebels (except the Beni Mtir) 8 days in which to make their submission. Unfortunately, the Sultan appears to have immediately commenced a series of savage reprisals against the neighbouring tribes.

*Attacks on the Communications*:—In spite of the deep impression created by General Moinier's arrival, his communications have been subject to incessant attacks.

Colonel Gouraud with a convoy of 1,800 camels marched from Lalla Itto on the 20th May escorted by 2 battalions of Colonial infantry, 1 battalion of Tirailleurs Algériens, 1 squadron of Spahis, 1 field battery; near the River Beht they were attacked on the 22nd May by the Zemmur tribesmen, who are said to have charged up to within 500 yards of the convoy. The attack was beaten off with a loss of 125 killed, the French loss being 5 killed and 20 wounded, but fresh opposition was encountered on entering the hill country near Fez, and the column was persistently sniped till it met General Dalbiez's force which had been sent out from Fez to bring it in.

On the 25th, General Ditte, who had been left in command of the base, was attacked between Mehidia and Rabat.

It was stated, early in June, that General Moinier's force would be distributed as follows:—

500 men, as a garrison, outside the walls of Fez:

3,400 men keeping open the communications from Fez to the sea, *viz.*: 300 men at the port of Mehidia, 700 men at the advanced base at Kunitra, 1,200 men each at Lalla Itto and Sidi Gueddar (a post between Lalla Itto and Fez), and a post of 500 men at Sale, near the port of Rabat).

The line of communications, under the command of General Ditte, was to be divided into two sections: 1st section Rabat to Sidi Gueddar; 2nd section thence to Fez. A mobile force of 3,000 men was to be available for keeping open the communications.

A force of 5,000 men was to be allotted to the Shawai. This distribution would still leave 11,500 men available under General Moinier for operations against Mequinez or elsewhere.

MAROCCO—*continued.*

*Operations on the Algerian Frontier* :—General Toutée's force remained in observation in the Muluya country during the month. Though no general advance was attempted a good deal of fighting took place.

On May 10th, a mixed force of 1 battalion, 1 battery, 1 squadron, and 1 "goum" engaged in a punitive expedition near Guercif, killing 34 of the insurgents.

On May 13th, the tribesmen raided the French camp at Taurirt and successfully carried off 200 cattle.

On May 16th, a reconnoitring party of the Foreign Legion were ambushed in a fog near Debdu, and lost 1 officer and 27 men killed, and 1 officer and 6 men wounded.

On May 19th and 21st, Taurirt was again attacked in the early morning, the numbers of the assailants being estimated at 400 and 300 respectively. On the latter occasion they were driven across the Muluya under fire, leaving 6 casualties.

*Spain and Marocco.*

During the events above described, the following movements took place in the Spanish sphere of influence :—

On May 8th a portion of the Spanish garrison at Ceuta occupied and entrenched the following points on the Ceuta-Tetuan road :—

Kudia Federico, dominating the valley of the Almarza River;

Kudia Fajana, commanding the left bank of the Castillejos River; and the Condesa heights.

The Prime Minister described the action of Spain in taking up these new positions as merely for the purpose of policing the district pending the installation of Spanish-Moroccan police, to which measure the Maghzen has already consented.

On May 21st, Spanish troops from Ceuta (moving by sea and landing without difficulty) occupied Monte Negro, a point close to the coast and half way between Ceuta and Tetuan, and established a police post there.

By the occupation of Monte Negro it was hoped to ensure the tranquillity of the region and to exercise greater vigilance on the coast.

On May 13th, a Spanish column from Melilla marched *via* Zoco el Arbaa and occupied Zaiu, a position near the left bank of the Muluya 19 miles south-east of Zeluan and 25 miles from Zoco el Arbaa.

The occupation of Zaiu (which is in the Spanish sphere of influence) is said to have been contemplated since October, 1910. Two roads lead from Melilla to Zaiu; one *via* Zeluan and the other *via* Zoco el Arbaa.

It is further reported that on May 23rd, two posts were taken up to link the troops at Zaiu with Zeluan.

## Germany.

Regimental tents are to be made of "field grey" the material, the colour of the new service uniform, in place of the grey brown formerly used.

Pistols adapted for throwing a kind of star shell with a view to lighting up ground at night are now to be issued as an article of equipment to Pioneer battalions. They have been experimented with for some time past, and have been found especially useful during night fighting in fortress warfare.

GERMANY—*continued.*

*Manœuvres in 1911.*—The Imperial Manœuvres will take place from the 11th to the 13th of September between the Guard, II. and IX. Army Corps. According to the German Press the opposing sides will consist of a Northern Army, under command of Field Marshal Prince Leopold of Prussia, Inspector-General of the 1st Army Inspection, consisting of the II. and IX. Army Corps, a cavalry division, and a landing party from the fleet; and a Southern Army commanded by Field Marshal von Kessel, with the Guard Corps and a XX. Army Corps, which will be formed for the occasion from portions of neighbouring army corps.

Dirigibles and aeroplanes will be allotted to both sides. The manœuvre area will be in the valley of the Oder. The great ceremonial parades which precede the Imperial Manœuvres will be held for the IXth Corps on the 26th August at Altona; for the IInd Corps on the 29th August, at Stettin; and for the Guard Corps on the 1st September, at Berlin.

It is understood that at this year's manœuvres all the troops will wear the old blue uniform. The reason is said to be economy, as it is not possible to provide the new service dress for all units at present in addition to that required for mobilization.

## Japan.

*Manœuvres in 1911*:—The following manœuvres will take place in 1911:—

(*a*) Special grand manœuvres of the 6th, 12th, and 18th Divisions in the 12th Divisional Territory.

(*b*) Inter-divisional manœuvres, 4th and 16th Divisions.

(*c*) Special heavy artillery manœuvres during October in the neighbourhood of Shimonoseki. The 5th and 6th Regiments and Tsushima, Sasebo, and Nagasaki Battalions of heavy artillery will take part.

*Military Mission*:— General Yamaguchi (chief of mission); General Toyobe; Lieutenant-Colonel Onodera and 3 other Japanese officers are making a special study of the French army.

## Mexico.

*Resignation of President Diaz*:—About the beginning of May formal negotiations were opened between President Diaz and the rebels. On May 22nd a preliminary agreement was signed at Juarez near the United States Frontier, between General Madero and the representatives of the Government, one of the conditions being the immediate retirement of the President and Vice-President.

General Diaz accordingly resigned on the 26th May, and immediately left for Vera Cruz, the Government being carried on by Senor de la Barra as provisional President. It is estimated, according to a telegram to the *Times* dated May 28th, that the cost of the war is £4,166,666 while damages payable to foreigners amount to £416,666.

## Russia.

*Manœuvres in 1911*:—Manœuvres of all arms will be held this year, probably in September, in the Vilna, Warsaw, Kiev, and Pri-Amur Military Districts; each under the supervision of the G.O.C. the Military District.

After the conclusion of the above manœuvres special autumn cavalry manœuvres will take place from the 11th to the 17th in the Vilna Military District, and in the Volinsk Government of the Kiev Military District.

## Turkey.

### THE ALBANIAN RISING.

The region affected by the Albanian rising this spring is the country between Kopliku and Tuzi extending from the Alps of Albania to the shores of the Lake of Scutari. The Kastrati, Klementi, Skreli, Pulati, and Hoti (Catholic) clans, who inhabit this district number about 27,000; they demand that Albania should be constituted as a separate province; that Albanian schools should be maintained by the state; and that Albanian conscripts should not be liable to serve outside Albania in peace time.

Some 10,000 Albanians living on the other side of the Montenegrin frontier are in sympathy with the insurgent cause.

In the first stage of the rising (end of March) the rebels attacked and captured nearly all the Turkish posts in this section of the frontier, with the exception of the fort of Shipshanik (near Tuzi). The Turkish losses were said to be 164 men, 3 guns, many rifles, and 10 blockhouses.

In the second stage (first week of April) the Turks, who originally had only four battalions in the whole Vilayet of Scutari, were reinforced by some reservists (*Mustahfiz*) called hastily under arms, and, led by Emin Bey, drove back the insurgents, relieving fort Shipshanik.

In the third stage (about April 7th) the Albanians renewed the attack and Emin Bey was for a time isolated at Tuzi. Three battalions which had landed at San Giovanni de Medua abouf 3rd April pushed up to Tuzi and relieved that place. Shevket Torghoud Pacha was appointed to command the operations.

TURKEY—*continued.*

The Minister of War now ordered the mobilization of the Anatolian *redifs* to be accelerated, and some battalions were shipped direct from Asia Minor.

The difficulty of getting reinforcements to the theatre of war was increased by the attitude of the Mirdite clan. It became necessary to cease using San Giovanni de Medua as a port of disembarkation, and, instead, to tow the troops in lighters up the narrow and winding River Boyana to Scutari.

A series of engagements, regarding which reliable information is difficult to obtain, occurred between the 8th and 12th April. The Turks appear to have lost heavily in ambushes, without, however, re-opening communications with Tuzi. Reports from Turkish sources stated that the rebels were receiving arms and assistance from Montenegro, an allegation which was vehemently denied by King Nicholas. It appears evident, however, that relations between Turkey and Montenegro have been severely strained by the continuance of operations close to the frontier.

About the 17th April the force under Torghoud Pacha is said to have consisted of 16 infantry battalions, including 9 battalions of *redifs*, which arrived from Asia Minor on, or after, the 13th April. The garrison blockaded at Tuzi was stated to consist of 1,000 Turks and 1,000 Bashi Bazouks.

In the fourth stage the Turks endeavoured to localize the rebellion, and drive the Albanians up against the neutral frontier by a combined sweeping movement with two columns, one from the south, and one from the north-east.

About the 17th or 18th April the Turks advanced in 2 columns, one from Gusinje, and one from Scutari, converging towards Tuzi.

The Gusinje column, after severe fighting in the snow, was forced to retreat. The Scutari column also encountered strong opposition near Kastrati, and after several days fighting had gained some success, but had, apparently, failed to reopen communications with Tuzi.

EVENTS IN MAY

About the 3rd May a general attack delivered by the Turks on the Hoti-Kastrati position, was again repulsed with heavy loss; the movement of troops from Salonika to Uskub and the north of the vilayet of Kossovo was commenced.

Torghoud Pacha now issued a proclamation calling on the tribes to lay down their arms within 5 days. On the 14th May active operations were again commenced and on the 16th and 17th the Turks reported that the Scutari force had captured important points on the Scutari-Tuzi roads, besides the position of Planitza close to the Montenegrin frontier. On the 18th the Albanians renewed the attack, and stormed the Planitza position in the face of heavy artillery fire, capturing large quantities of ammunition and stores; the captured position was, however, almost immediately evacuated by the Albanians (who were apparently, anxious regarding the movements of the Gusinje column) and was re-occupied by the Turks.

The Gusinje column was again checked in the mountains, and forced to retire without having effected a junction with Torghoud Pacha. The troops of this column were Anatolians, unused to the hardships of mountain warfare.

On the 29th May a fresh combined movement was attempted with both columns, but was again checked.

TURKEY—*continued.*

At the end of May Shevket Torghoud Pacha had under his orders some 33 battalions, in the Scutari district, with over 20 battalions further to the north and east on the Montenegrin frontier.

The next stage of the war was marked, in the first week of June, by the somewhat belated revolt of the powerful Mirdite clan, numbering some 10,000 fighting men. Alessio was attacked and occupied by the Mirdites, while telegraphic communication between Scutari and San Giovanni de Medua was interrupted.

*From "Questions Diplomatiques et Coloniales" 16 May. Telegrams to the "Times," April and May.*

THE RISING IN YEMEN.

The Turkish Military operations, the result of which was the relief of Sanaa and clearing of the country between that place and Hodeida, appear to have been well carried out, though the news from this locality is by no means full. A move will now be made in the other disturbed area, *i.e.*, in the Assyr province, and for this purpose a division including 5 battalions of Syrian *redifs* is being landed at Cunfuda, to co-operate with the Sherif of Mekka's levies.

ORGANIZATION.

The details of the *redif* distribution, introduced in consequence of the new scheme of army re-organization, have now been made public. As previously reported the *redif* divisions will normally consist of three 3-battalion regiments, corresponding to the *nizam* grouping, and the number of such divisions will be 39 of the 1st Class (6 in Europe and 33 in Asia) and 19 of the 2nd Class (2 in Europe and 17 in Asia).

## Greece.

The Army Law this year fixes the peace strength of the Regular Army at 27,621, and the number of the recruit contingent at 13,111.

## Rumania.

The 10th Reserve Division, which was created last year, is being transformed into an active division; this necessitates the formation of 4 new infantry regiments and 2 additional regiments of artillery.

A new rank, that of "General of Army Corps," has been created; hitherto the highest rank was "General of Division."

# NAVAL AND MILITARY CALENDAR.

## MAY, 1911.

1st (Mon.) Launch of H.M.S. *Conqueror* from the yard of Messrs. Beardmore and Co., Dalmuir on Clyde.

5th (Fri.) Centenary of the battle of Fuentes d'Onor.

10th (Wed.) H.M.S. *Medea* arrived at Plymouth from Mediterranean.

11th (Thur.) H.M.S. *Hyacinth* arrived at Plymouth from East Indies.

15th (Mon.) H.M. Ships *Leviathan* and *Berwick* paid off at Chatham and recommissioned the following day.

,, ,, H.M. Ships *Temeraire* and *Medea* paid off at Devonport and recommissioned the following day.

,, ,, H.M.S. *Scylla* arrived at Sheerness from North America and West Indies Station.

16th (Tues.) Centenary of the Battle of Albuhera, 1811.

20th (Sat.) H.M.S. *Medea* left Plymouth for Mediterranean.

22nd (Mon.) H.M.S. *Donegal* paid off at Devonport and recommissioned the following day.

23rd (Tues.) H.M.S. *Æolus* commissioned at Devonport.

24th (Wed.) H.M.S. *Scylla* paid off at Chatham.

25th Thur.) Launch of first-class battleship *Wyoming* from Cramp's yard, Philadelphia, for U.S. Navy.

26th (Fri.) Birthday of Her Majesty Queen Mary.

27th (Sat.) Official celebration of the birthday of His Majesty the King.

29th (Mon.) H.M.S. *Æolus* left Plymouth for West Indies.

,, ,, H.M.S. *Superb* paid off at Portsmouth and recommissioned the following day.

30th (Tues.) H.M.S. *Exmouth* arrived at Portsmouth from Mediterranean

# NOTICES OF BOOKS.

*For Remembrance and in honour of those who lost their lives in the South African War, 1899-1902, "Lest we forget."* By Colonel Sir James Gildea, K.C.V.O., C.B. 444 pp., with an index. London, 1911. Eyre and Spottiswoode. 2 guineas.

This book is probably unique, among all others of its kind, for the thoroughness and completeness with which the task undertaken has been carried out. Particulars, illustrated by excellent photographs, are given of some 900 memorials in the United Kingdom, India, Ceylon, Canada, Australia, New Zealand, and South Africa. Nevertheless, the book is far more than a mere album of photographs of memorials. For purposes of

historical record it fills a part which alone would have justified the infinite care and labour involved in its compilation; for the friends of many among the 20,766 whose names fill the death roll of the war, it will never be possible to stand beside the graves, or read the inscriptions graven on obelisks from which they are separated by oceans and continents; for them Sir J. Gildea's book performs a loving service, and it is to be hoped, in the interests of poorer citizens, that as many public libraries as possible will obtain copies; the price is certainly not unreasonable considering the number of photographs and the excellent finish of the work, and it is to be noted that all profits are to be devoted to the Royal Homes for Officers' Widows and Daughters. Again, the publication of a book of this kind cannot fail to be of assistance to those societies which have undertaken the task of tending the graves, by arousing interest in the work which they are faithfully carrying out, often under great difficulties. Finally, there is an immense service which this book renders to the whole Empire, and that is the appeal it makes to the spirit of comradeship, which constitutes the real bond of Empire. The lists of names inscribed on tablets and obelisks are drawn from almost every British Dominion and Colony, and they are an enduring testimony to the strength of the sentiment which called forth such willing sacrifice for the Empire in the hour of her need.

*Manual of Field Engineering.*—General Staff. War Office. 131 pages, with numerous diagrams and an index. London, 1911. H.M. Stationery Office.

Until recently the idea was generally prevalent that field engineering was a highly technical subject which was better left to the expert. The reasons for this attitude are not far to seek. Text books dealing with the subject were full of the most elaborate drill for the construction of the simplest objects and in addition bristled with formulae which were unsuitable for field use. In practice also little or no effort was made to bring the engineers and other arms into close touch so that they might become better acquainted with each others powers and limitations. First of all South Africa and subsequently Manchuria emphasised the lesson of Plevna and showed what might be done by all arms by means of field fortification.

The importance of the subject and the necessity of the various arms being trained to apply correct methods in the field is now generally recognised. While field fortification must always be regarded as a means to an end, it must also be remembered that its judicious employment, by enabling a commander to husband his resources, may make all the difference between failure and success.

In the new edition of the manual of field engineering, the chief object has evidently been to assist the various arms in dealing with such questions as may present themselves on service, and for the solution of which elaborate methods are unsuited. A brief recapitulation of the chief innovations may, therefore, prove of some service to officers studying the subject.

In Chapter I the increased power of penetration of the newest type of bullet should be noted. This will necessitate a corresponding increase in the amount of cover, if it is to be effective.

Chapter II deals briefly with the tools and materials usually available in the field. The value of sacks as revetments or to form parapets is emphasized.

In Chapter III., which deals with working parties and their tasks, stress is laid on the principle that units should always be able and ready to construct suitable defences for themselves. The engineer field companies allotted to a division will usually have plenty of work requiring technical skill though it may be necessary to give the other arms assistance in special cases. While rules for working party tasks are given as a guide, it is pointed out that mechanical spacing and distribution for digging fire trenches are to be avoided, but that this should not prevent the distribution of the parties being carried out with regularity, so as to avoid confusion and possible loss of tools.

A simple form of working party table is given on which the commander of a unit can show, in a simple form, the works he his undertaking, and how his men and tools are employed. If he requires additional tools application to his superior should be made, and the latter can fill in any additional source of supply.

Chapter 4 deals with the improvement of the field of fire. It lays down that attention should first be directed to clearing the field of fire near the position, subsequently working forward as time permits.

Chapter 5 discusses various types of earthworks. The importance of selecting their sites with a view to mutual support and of hiding them so as to avoid drawing attention to their existence are two of the principal points mentioned. Various types of head cover and their value are discussed, though the difficulty of concealing a trench thus provided is recognised.

Types of protected look-outs and of emplacements for machine guns have been added.

The next chapter discusses the principles of employment of obstacles and the conditions which they should fulfil. It is pointed out that the most effective obstacles are those made with wire, as they are difficult to destroy or pass. The arrangements for forming an obstacle of this nature are dealt with in detail, and it should be noted that symmetry does not form part of the plan. A section dealing with the passage of obstacles has been added.

Chapter 7 deals with the defence of a position and of localities, and is the most important from a tactical point of view as it gives an outline of the principles on which the defence of a position should be organized. Plates 16, 17, and 18, should be studied in this connection though it should be constantly borne in mind that they are types only, and that slavish adherence to them is nowhere demanded. Improved methods of camp cooking and sanitation are dealt with in Chapter 9.

Chapter 13 deals first with the passage of water by extemporised methods (section 80), a method of swimming horses is then shown, and lastly, various types of bridges requiring more preparation are discussed. Formulae have been reduced as far as possible, and two plates, numbered 57 and 58, have been inserted from which the necessary size of trestle legs to take various weights can be readily obtained.

The last two chapters deal with hasty demolitions with and without explosives.

Appendix II shows in one table various details, which were scattered throughout former editions, of the men, time, and tools required for the execution of certain field works. By means of this table calculations for the performance of all the usual work in the field can be made.

*A Study of the Development of Infantry Fire Tactics.* By Colonel Beca. Translated by Captain A. F. Custance, with a preface by Colonel Hacket Pain, C.B. 129 pp. London, 1911. Swann Sonnenschein and Co.

This book is a comprehensive study of the whole subject of infantry tactics. In the preface we are given a clear summary of the leading points of difference between the French and German schools of thought. The introduction, which is by the translator, contains some diagrams of the organization and fighting formations of infantry which, in the opinion of Captain Custance, are fairly typical of most continental armies. It would, perhaps, have been better to have explained that the diagrams of battle formations are in no sense to be regarded as "normal formations." these being no more in favour on the continent than in England. In the book itself, the evolution of infantry tactics is first treated historically, from the time of Alexander the Great up to the present day. Colonel Beca shows how the French suffered in 1870 from adhering too long to regulations which took no count of the development of fire power; and how the disquieting doubts raised on the continent by Boer tactics, were finally set at rest by the successes of the Japanese attacks in Manchuria. Under the head of "Vulnerability of Infantry Formations," the author gives some interesting data regarding musketry experiments at Chalons, and sums up the results in four useful and practical rules. In the concluding chapters, dealing with battle tactics, Colonel Beca quotes freely from the French and German Manuals, without, however, bringing out as clearly as might be wished the essential points of difference between the two systems. Fortunately this omission has been supplied in the preface by Colonel Hacket Pain. We are not told to what nationality Colonel Beca belongs, but speaking generally, he appears to incline rather to the French than to the German school.

---

*Colonel Henry Bouquet. A Biographical Sketch.* By Lieutenant-General Sir Edward Hutton. 40 pp. Winchester, 1911. Warren and Sons.

The histories of British regiments afford many glimpses of brilliant and attractive personalities, but few that can excel in interest that of this intrepid soldier of fortune, who, after an apprenticeship served in the Dutch and Sardinian armies, was called to the command of a British regiment (the 60th Royal Americans) then newly raised for service in North America. Great indeed must have been the originality and adaptiveness which enabled the new commander to break entirely with European traditions in matters of tactics, dress, and equipment, and to adopt the methods of Indian frontier warfare. Colonel Bouquet's first opportunity for distinction came in the expedition against the French at Fort Duquesne (1758), in which, though not in chief command, he played the leading part; but the exploit with which his name will always be most closely connected with his campaign on the Ohio during the Indian rising known as the "Conspiracy of Pontiac" (1763). The flying column under his command, for the relief of Fort Pitt, consisted of some 1,500 men, including his own regiment, and the 42nd Highlanders. The route lay through dense and pathless forests; the column was opposed at every step by Indians, and was finally forced to take up a defensive position at Bushey Run. Colonel Bouquet succeeded, by the use of an Indian stratagem,

in extricating his force, and in inflicting a crushing blow on the enemy. Pressing on, he relieved Fort Pitt, and continued his march westward for ten days into the heart of the unexplored country.

Imposing on the Indians by the audacity and speed of his march, he was able without further fighting to bring the rebel chiefs to a conference, and finally to secure the release of all the captives, and the acceptance of the conditions of peace demanded by the Government.

The ingratitude with which his efforts were rewarded by those who had most cause to be grateful to him, his disappointment, and his early death form a tragic sequel to the delightfully written narrative of his achievements.

*Burmese Self-Taught.* By R. F. St. A. St. John, Hon. M.A. (Oxon). 168 pp. Marlborough and Co., London.

This manual has been arranged in such a way as to serve both as a text book for students of the Burmese language, and as a handbook for tourists or travellers in Burma. The book opens with a chapter on the alphabet and pronunciation, the underlying idea of the system of phonetics employed being that each sound in the Burmese language is represented, as far as possible, by a separate phonetic sign, so that each sign must always be pronounced in the same manner. Next follow a series of vocabularies, arranged by subjects. The manual concludes with a short chapter on grammar, and a collection of conversational phrases.

*The Naval Annual for 1911.* Edited by T. A. Brassey, A.I.N.A. 472 pp. With numerous diagrams and illustrations. London, 1911. T. Griffin and Co.

In entering on its twenty-fifth year of publication the Naval Annual has lost nothing of its usual completeness, embracing as it does, the whole field of British and foreign naval affairs.

Part I. of the new volume contains. in addition to the usual reviews of the progress of Navies, some articles of great importance, foremost among which are those by Admiral Sir Cyprian Bridge and Mr. John Leyland on the Declaration of London. In connection with this subject Lord Brassey furnishes an article on "Mercantile Auxiliaries," a subject which may come unexpectedly into prominence if the right to convert merchant steamers into cruisers is to be conceded.

Special articles are also contributed on "German Naval Administration" by Mr. John Leyland; "Oil Engines versus Steam Turbines," by Mr. Alex. Richardson; "The Tactics of Trafalgar," by Mr. J. Thursfield; and "The Dreadnought Era," by Commander Robinson. The article on Foreign Navies is by Mr. John Leyland.

Part II. consists of the usual tables of British and Foreign ships and Ordnance, by Commander Robinson, R.N., and Mr. John Leyland; Part III. of Armour and Ordnance tables, by Commander Robinson; Part IV. of Gunlayers Tests, official statements, estimates, etc., regarding British and Foreign Navies; and the text of the Declaration of London. The illustrations include the *Neptune, Newcastle* and *Boadicea; Justice* (French); *Augsburg* (German); *San Giorgio* (Italian); and *Giorgios Averof* (Greek). The index is very complete, and adds greatly to the usefulness of the book.

# FOREIGN PERIODICALS.

## NAVAL.

### Argentine Republic.

BOLETÍN DEL CENTRO NAVAL. Buenos Aires: *March, 1911.*—Capture at Sea. The Declaration of London. Artillery practice from ships. Calculations necessary for the installation of a wireless telegraph station. Light houses with intermittent lights worked automatically. Telescopic sights. Utilization of gas power for ships' engines.

### Austria-Hungary.

MITTHEILUNGEN AUS DEM GEBIETE DES SEEWESENS. No. 6. Pola: *1911.*—The launch of the *Admiral Spaun*. The results of the cruise of the non-magnetic yacht *Carnegie* in 1909—1910. Some theories as to the introductory stages of fleet actions. The Italian Naval Budget for 1911-12. The Japanese Naval Budget for 1911-12, and their building programme up to 1916.

### Brazil.

REVISTA MARITIMA BRAZILEIRA. Rio de Janeiro: *March, 1911.*—A just punishment for the mutineers. Summary of the administrative systems of various foreign navies. The manufacture of side arms. The navy of Brazil (Chapter XXVII). The interplanetary spaces (continued).

### France.

REVUE MARITIME. Paris: *April, 1911.*—A problem in naval cinematics. Notes on the employment of motor boats in navies. The projection of light.

LA VIE MARITIME. Paris: *10th May, 1911.*—What is the object of naval raids on a large scale? Visit of United States cruisers to Europe. Influence of accidental causes on naval policy. French auxiliary cruisers in the 17th and 19th centuries. The tour of the President of the Republic in Tunis. How are reforms carried out in the navy. The navy and the naval policy of the United States. *25th May.* New naval construction. The trials of the *Voltaire*. The fleet and the naval policy of the United States.

LE YACHT. Paris: *6th May, 1911.*—Squadrons and Flotillas. The composition and distribution of the British naval forces in 1911. *13th May.*—The employment of the compass in aerial navigation. The launch of the destroyer *Boutefeu*. *20th May.* The composition of the division of our battle squadrons. Notes on a cruise in equatorial Africa. The composition of the French fleet in 1912. The trials of the *Voltaire*. The composition and distribution of the British naval forces in 1911. *27th May.* The trials of the *Danton*. Notes on a cruise in equatorial Africa.

LA MARINE FRANCAISE. Paris: *May, 1911.*—The second stage of the naval programme. The education of naval officers. Naval bases and points of support for our fleet. How far can dirigibles influence the course of a war?

### Germany.

MARINE RUNDSCHAU. Berlin: *May, 1911.*—Remarks on the first Anglo-Dutch war (1652 to 1654) (concluded). An unknown narrative of Magal haes' voyage round the world. Australian defence policy. The annual report on the United States navy for the financial year 1909-10. The debates on the French naval estimates for 1911. The British naval estimates for 1911-12. *June, 1911.*—The rising in Ponape and its suppression by the *Emden, Nürnberg, Cormoran, and Planet.* The present position of dirigibles and aeroplanes and their employment in naval war. The annual report on the navy of the United States. The organization of surgical stations on board ship during an action.

### Italy.

RIVISTA MARITTIMA. Rome: *May, 1911.*—The presentation of a flag to the *S. Marco.* The hydrographical cruise of the *Ciclope.* Firing against dirigibles and aeroplanes.

---

## MILITARY.

### Austria-Hungary.

DANZER'S ARMEE-ZEITUNG. Vienna: *4th May, 1911.*—The May promotions in the Austro-Hungarian army. The North American Civil War. Torpedo flotillas. *11th May.*—Making use of ground. Criticism of a pamphlet dealing with strength of contingents. The contracts for the Servian Artillery. Should our naval officers know more about our coasts? *25th May.* —A resumé of the new military service law. General Staff duties. Dreadnoughts of the air. Disadvantages of militia systems. Experience of foreign armies with one-year volunteers in the cavalry.

STREFFLEUR'S MILITÄRISCHE ZEITSCHRIFT. Vienna: *May, 1911.*—The battle of Kolin 18th June, 1757 (continued). Changes in the Austrian army in 1910. Field Artillery fire effect. Transport and Supply service of the 1st Corps in the manœuvres of 1909 in Moravia. Changes in foreign armies in 1910 (continued). Communications from the Army School of Musketry: employment of machine guns in breaking off an engagement. Notes from the armies of Germany, France, Great Britain, Italy and Russia. Technical notes: encounters between aircraft; difficulties of orientation in aircraft; electrical transport trains in Germany.

### Belgium.

BULLETIN DE LA PRESSE ET DE LA BIBLIOGRAPHIE MILITAIRES. Brussels: *15th May, 1911.*—The Imperial Manœuvres in Germany in 1911. The new German Army Bill. A new Wörth: a battlefield of to-morrow. *31st May.*—Notes on the organization of the British Army. The new German Army Bill (concluded). A new Wörth: a battlefield of to-morrow. The Imperial Manœuvres in Germany in 1910.

### France.

JOURNAL DES SCIENCES MILITAIRES. Paris: *1st May, 1911.*—Railways in war. Bürde's "Tactical Principles," The Army of Africa and the law

of Cadres. Montaigne's essays and military science. The small arms of modern armies and their ammunition. *15th May, 1911.*—The engagement of La Marche en Woëvre. Bürde's "Tactical Principles" (continued). The new privisional regulations for field artillery fire. The small arms of modern armies and their ammunition. Practical instruction in making use of the ground.

REVUE D'INFANTERIE. Paris: *1st May, 1911.*—The Japanese in Manchuria (continued). The new regulations for field fortification for officers of all arms in Russia. The right wing of the Prussian army at Rezonville. The Roumanian regulations for machine gun companies.

LE SPECTATEUR MILITAIRE. Paris: *1st May, 1911.*—The education of soldiers, especially of infantry soldiers. A year's experience of tactical instruction of the cadets in a demi regiment of cavalry. Italy: the General instructions for the employment of the larger formations (to be continued). The Germans in the Gatinais.

*15th May, 1911.*—A year's experience of tactical instruction in a demi regiment of cavalry. The employment of the larger formations (concluded). The training, education and conditions of service of the German officer. The battle of Coulmiers (to be continued).

REVUE DE CAVALERIE. Paris: *April, 1911.*—The battle of Magenta: a charge of cavalry. Advice to the new editing staff. Our leaders: General Durand de Villers. Soldiers who are members of the academy. The need of an Inspector-General of Cavalry. The military fencing society. On the battlefield: a study in combined tactics. Remounting of the German army. *May, 1911.*—A study on the conduct of war: the effect of moral influences (1793). The effect of the two years' system on the French cavalry. The cavalry of the future. The Trakehnen horse breeding establishment and the East Prussian horses. The heavy brigade of Saxon cavalry at the battle of the Moskwa.

REVUE MILITAIRE GENERAL. Paris: *April, 1911.*—Written comments on manœuvres by General officers commanding. Some critical remarks on the engagement at Drijdelé (Wadai), 9th November, 1910. Tactics (more letters to a young officer). The combination of the 3 arms on the field of battle. A fifth study of Alpine tactics. The doctrine of national defence.

REVUE D'HISTOIRE. Paris: *May, 1911.*—The campaign in the Shawia (concluded). Marching in the days of Napoleon (to be continued). The manœuvre of Pultusk (to be continued). Napoleon and the German fortresses in 1813 (to be continued). The campaign of 1813: the introductory stage (to be continued). The war of 1870-1871. The 1st army of the Loire (to be continued).

REVUE MILITAIRE DES ARMEES ETRANGERES. Paris: *May, 1911.*—The German Imperial Manœuvres in 1910 (concluded). The Mexican army.

REVUE D'ARTILLERIE. Paris: *15th May, 1911.*—The independent line of sight in 1901. An apparatus for showing the minimum elevation required to clear the crest of cover when using indirect fire. The experimental Commission of the Prussian army. Signalling without trained signallers.

## Germany.

MILITÄR-WOCHENBLATT. Berlin: *2nd May, 1911.*—Range practices or field firing. The task of the VII. Corps at Gravelotte. Obituary notice of General v. Scherff. Movements to a flank of large modern armies. instruction for field fortifications for officers of all arms in the Russian army. Notes from the French army.

*4th May.*—Debatable points regarding the campaign of 1813. The instruction for field fortifications for officers of all arms in the Russian army. The Austro-Hungarian Military Budget for 1911.

*6th May.*—The British 'memorandum on army training,' The instructions for field fortifications for officers of all arms in Russia. Development of motor transport in Germany, France and Austria.

*9th May.*—The instructions for military engineering for officers of all arms in Russia. A new work about Prince Frederick Charles of Prussia. Germany as a world power.

*11th May.*—Is secrecy necessary regarding fortresses? Passage of infantry through lines of guns in action. Supply service in the field in the Italian army. *13th May.*—Field-Marshal v. d. Goltz completes 50 years' service. Gymnastics in the army. Amendments to the French infantry regulations. *16th May.*—The training of British infantry in night fighting. The rates of pay during the war of liberation. The scale of equipment with maps, and their use in Russia.

*18th May,*—Moltke's military works: Part III. The tactical preparation for the battle. The German Navy List for 1911. Motor vehicles for medical duties. The distribution of the British Army. *20th May.*—The Army List for Prussia and Württemberg. Progress in military affairs in Turkey. *23rd May.*—The task of the VIIth Army Corps at Gravelotte. Carbines and lances in dismounted fighting. The characteristics of the Greek soldier. The principles of the new Japanese Field Artillery Regulations. *25th May.*—Range practices or field firing? The task of the VIIth Army Corps at Gravelotte. *27th May.*—Notes from the French army. *30th May.*—Close reconnaissance. Notes from the French army. Aeronautics in Germany in 1911.

JAHRBÜCHER FÜR DIE DEUTSCHE ARMEE UND MARINE. Berlin. *May, 1911.*—Moltke's strategy between Metz and Sedan from French and German points of view (concluded). The provisional regulations for field artillery fire of March, 1911. Night fighting. Notes on the study of ground. Notes from the Russo-Japanese war of 1904-5. The question of full and half sights. The strategical importance of the Panama Canal.

ARTILLERISTISCHE MONATSHEFTE. Berlin: *May, 1911.*—A reply to C. Cranz's article on ballistics. The new French field artillery regulations. The revise of the Russian firing instructions for 1909. Notes on the development of combined shell for field guns. Training of remounts in the French field artillery. The question of the strength of batteries in Holland. The new 7.5 cm. field gun for the Netherlands East Indies. The Comet Mast.

## Italy.

RIVISTA MILITARE ITALIANA. Rome: *April, 1911.*—The organization and tactical employment of machine guns in the field (continued). The march of Garibaldi from Renda to Palermo in May, 1860 (continued). Speeches of Frederick the Great (continued). Historical notes on the fortress of Osoppo. The critical period when the strength of the army is at its

lowest, and the calling up of the recruits in two portions. The military preparations of Prussia and the peace of Villa Franca in 1859. The employment of field artillery. Alcoholism in the army.

**Spain.**

REVISTA TÉCNICA DE INFANTERÍA Y CABALLERÍA. Madrid: *1911.*—The advance of infantry under artillery fire. A critical study of the special musketry course for first lieutenants of cavalry. Preparatory military instruction for youths.

REVISTA CIENTIFÍCO MILITAR Y BIBLIOTECA MILITAR. Barcelona: *10th May, 1911.*—Tactical methods in Marocco. Lance versus sword (concluded). The re-organization of the N.C.O.'s of the Italian army.

**Switzerland.**

REVUE MILITAIRE SUISSE. Lausanne: *May, 1911.*—The history of the regiment of Swiss guards in the service of France (continued). The manœuvres of the St. Maurice garrison in 1910 (concluded). The French mountain gun, Deport system.

**United States.**

JOURNAL OF THE U.S. CAVALRY ASSOCIATION. Fort Leavenworth, Kansas: *May, 1911.*—Psychology of War. The work of the Cavalry equipment board. Cavalry equipments. A criticism of our cavalry drill regulations. Cavalry Instruction. Field training versus target practice. A proposed method of linking and dismounting to fight on foot. The Fort Reno Remount Depot. The Cavalry of the British Army.

JOURNAL OF THE MILITARY SERVICE INSTITUTION. *May—June, 1911.*—Volunteer Camps. Militia conditions. Signalling in France. Regimental organization. Militia training. Logistics.

PROCEEDINGS OF THE AMERICAN SOCIETY OF CIVIL ENGINEERS. New York: *May, 1911.*—Mule back reconnaissances. (page 794).

# RECENT PUBLICATIONS OF MILITARY INTEREST.

## COMPILED BY THE GENERAL STAFF, WAR OFFICE.

APRIL, 1911. PUBLISHED QUARTERLY.

PART II*. SECTION I. HISTORICAL—(*continued*).

*Communicated by the General Staff and reprinted by permission of the Controller of His Majesty's Stationery Office.*

THE CAMPAIGN OF 1878 IN BOSNIA AND HERZEGOVINA. (La campagne de 1878 en Bosnie-Herzegovine). By Reginald Kann. 188 pp. with one map. 8vo. Paris, 1910. Charles Lavauzelle. 3/6.

Little is known of the Austrian campaign in Bosnia and Herzegovina which, in spite of the great efforts made to obviate it, was rendered necessary for the occupation and pacification of these two provinces, the administration of which was handed over to Austria-Hungary by the Treaty of Berlin.

The origin of the war and the steps taken to prepare for it are first described. The operations of the three columns, into which the Austro-Hungarian field force was divided, are then followed separately until the columns re-united shortly before the capture of Sarajevo, which put an end to all organized resistance. The work of occupation and pacification is then described in detail.

THE PHILOSOPHY OF A WAR. (Philosophie d'une guerre—1870). By Emile Ollivier. 346 pp. Paris, Flammarion. 3/-.

The author of this book was the head of the Ministry which was in power during the fatal days of July, 1897. Although his account of the diplomatic events which led to the Franco-German War must be considered to be to a certain extent an *ex parte* statement, it is impossible not to praise the frankness displayed by him. Of course Bismarck is the villain of the piece, and probably there is no one nowadays who will deny that he deliberately provoked the war. Still it must equally be admitted that the success of his intrigues was facilitated by the French national jealousy and by the vacillations of Napoleon, and, in spite of Monsieur Ollivier's protestations, of his Ministers. It is true that Bismarck's and Prim's plot to offer the Spanish throne to Prince Leopold Hohenzollern burst upon France like a thunderbolt, and that the French Emperor and his Ministers did what they could to find a peaceful solution of the problem. But when Prince Leopold's renunciation seemed to have settled the question, Napoleon played Bismarck's game by demanding guarantees of the Prussian King. The telegram ordering the French

* The titles of all books are given in English; this does not indicate that the books have been translated. The original title in the language in which a work is written, if not in English, is given in brackets.

Ambassador to approach the King for this purpose was, according to Monsieur Ollivier, drawn up by Napoleon and the Duc de Gramont without the knowledge of the other Ministers.

The author shows clearly, however, that the French military authorities were completely confident of their ability to meet the Prussian Army, and of their preparations for mobilization. Marshal Leboeuf, Minister of War, was asked at a Cabinet Council whether he was ready and he replied in the affirmative, adding "the French Army, even if inferior in numbers, will beat the enemy." The Naval Minister said "Never have I believed in any institution as I believe in our army."

---

THE RUSSO-JAPANESE WAR, PART IV. (Der Japanisch-Russische Krieg IV. Teil). By General von Lignitz. 287 pp. (numbered 501-788). Table of contents; list of maps, list of authorities; 19 illustrations in text; 10 sketch maps; 2 sheets of plans; 23 appendices. 8vo. Berlin, 1911. Vossische Buchhandlung. 7/6.

This volume deals with the siege of Port Arthur from the middle of November, 1904, onward; and with the battles of Heikoutai, Mukden and Tsushima, and the fighting in Saghalien. The sketch maps and plans show the front of attack at Port Arthur, the 203-metre height (from N.W. and S.E.), and Fort Sung-shu; the fighting at Mukden (several plans); the march of the Japanese 3rd Army (from Japanese sources) between the 26th February and the 10th March; the Malakov; Vladivostock; Harbin; Saghalien.

The appendices comprise:—

Various accounts of conditions inside Port Arthur during the siege by German merchants, Japanese prisoners, and a Russian officer; a letter from General Kondratenko to General Stoessel; a memorandum by Colonel Reiss, Chief of the Staff, Port Arthur; descriptions of fighting at Mukden; General Mishchenko's instructions preceding his raid; Russian and Japanese accounts of Heikoutai; Japanese cavalry raids; tactical instructions issued by General Oku; official reports and private accounts regarding the fighting at Mukden; sanitary and supply details.

All the principal events which the author relates are shortly but clearly told, and the narratives of operations are interspersed with references to small details which are of interest to the military reader. Japanese and Russian official reports of engagements are inserted successively after the author's description. General v. Lignitz thinks that Kuropatkin's best course after the fall of Port Arthur would have been to withdraw from his advanced positions on the Shaho to a line Fushan—W. front of Mukden, postponing an action until April, when the arrival of fresh troops and a general thaw would have enabled the Russians to resist the Japanese onslaughts more effectively. Commenting on the fighting at Port Arthur, he points out how concrete has enabled improvised fortifications to become as capable of resistance as permanent masonry works within a short period, but that a less thickness than 90 centimeters (36 inches) is of no avail against shells larger than 6 inches. Exposed concrete is dangerous on account of splinters, and must yield to high explosives. Good flanking arrangements for ditches are what strengthen works. Partitions to doors and galleries should be loopholed. Approaches are best defended by light pieces and machine guns which must only be brought up when necessary. Communications to the rear must be covered from view. Armoured observation posts are a *sine qua non*.

Sebastopol (taking of Malakov) is briefly mentioned, and its defence is said to have been stouter than that of Port Arthur.

Regarding Heikoutai, attention is called to the order by Kuropatkin directing that two field or mountain pieces per regiment (four battalions) should accompany columns attacking localities or fortified points; these guns to be used for battering and to aid in holding points won. The Russian shrapnel is said to have been useless against stout clay buildings. The fighting around Sandepu on the Japanese side (page 569 *et seq.*) is held up as a model for the use of advanced positions. Outlying hamlets were lightly held and helped to conceal the main village from hostile artillery. The faint-heartedness of the Russian leaders is criticised, and of Stackelberg, who forfeited his command owing to disobedience, he remarks:—"In war mistakes arise mainly in the matter of choosing between desirable initiative and tactical obedience: firmness of character must be brought into play in deciding upon measures to be adopted." The Mukden position (Russian) is given as 130 kilometres (some 75 miles) long. On page 603 are given Russian strengths and the number of their units is compared with the Japanese. Out of 263 battalions and over 1,000 guns Oyama kept only 30 and 42 respectively at his disposal. The difficulties of wide outflanking movements were exemplified by the fact that Nogi's men carried four days' rations which had to last for six. The twenty-one Pioneer battalions from Port Arthur were distributed as grenade-throwing parties throughout the Japanese armies. The author thinks that if the Japanese cavalry had been accompanied by numerous guns (if necessary captured pieces as well as their own) the results would have been more decisive. [See also R.P.M.I. Nos. 10 and 13.]

---

EUROPE SINCE 1815. By C. D. Hazen, Professor of History, Smith College, Northampton, Massachussetts, U.S.A. 830 pp. 8vo. London, 1910. G. Bell and Sons, 15/-.

This book gives a sketch of the history of Europe from the overthrow of Napoleon to the year 1909. Covering such an extended period, and dealing with affairs of so many nations, the author in his single volume has necessarily to omit many important events. In his preface he claims to have endeavoured to explain the internal development of the various countries, and their external relations in so far as they have been vital; also that he has attempted to preserve a reasonable balance between the different periods of the century, and to avoid the danger of over-emphasis.

On the whole he has been successful, and has produced a concise and readable history. From its conciseness however it will appeal only to the general student; to the student of military history it is of little value beyond that it briefly points out the causes which led to the several wars.

---

BUSSACO. By Lieut.-Colonel G. L. Chambers. 260 pp. with maps and illustrations. 8vo. London, 1910. Swan, Sonnenschein and Co. 7/6.

The author briefly reviews the events leading to the battle, and deals in detail with the course of the battle itself. The special feature of the book is the careful study of the ground which it affords by means of a number of excellent photographs.

The description of the battle is put in an interesting way and is easy to follow.

## MEDICAL.

POCKET MANUAL ON THE EXAMINATION OF FOODS. (L'Expertise Rapide, vade mecum hygienique de l'alimentation usuelle). By. E. Gautrelet. 263 pp. 8vo. Paris, 1910. Fournier. 1/2.

This little manual gives a concise description of the examination of all ordinary kinds of food and drink, together with the commoner adulterations of each article, and simple tests for the detection of these. It should be useful to sanitary officers employed with troops on manœuvres in the field, as it can be comfortably carried in a pocket and the tests described do not call for elaborate apparatus.

---

THE PREVENTION OF MALARIA. By Ronald Ross and other contributors. 669 pp. with 36 figures and illustrations. London, 1910. Murray. 21/-.

In his preface Ross points out the formidable character of malaria. in India alone the death-rate from malaria is estimated at 1,130,000 persons per annum, and in every tropical country from one quarter to one half of the total sickness is due to malaria.

The first half of the work is by Ross himself, and in it he discusses in detail the general problems which have to be solved. The question of the parasites and their carriers has been omitted, as the work is intended to deal with the problems of infection and its prevention. The epidemiology of malaria is discussed mathematically, many formulæ being used to show the value of the various factors concerned in spreading the disease.

All the contributions are well worth studying. In these the incidence of malaria, and preventive measures undertaken in various countries of the world, are described by experts thoroughly acquainted with the particular locality. Two of the contributions, viz., that by Lieutenant-Colonel Melville, R.A.M.C., on the prevention of malaria in war, and that by Major Fowler, R.A.M.C., on the prevention of malaria among troops under peace conditions should be carefully read by every military officer, in view of the fact that so many of our garrisons are situated in malarious districts, and on account of our frequent small wars in tropical countries.

The illustrations are well chosen, mainly with a view to showing typical breeding grounds of anopheles mosquitos, and mechanical means of protecting houses from mosquito invasion.

---

IN BESIEGED PORT ARTHUR. By V. B. Gyubbenet. 406 pp. with two maps. 4to. St. Petersburg, 1910. 9/-.

The author was a medical officer of the Russian Army who held the post of Specialist Surgeon to the 3rd Siberian Army Corps, and was shut up in Port Arthur during the siege. In the first chapter he gives a narrative of the Russian military operations in the Kuantung peninsula, and a general description of Port Arthur and its defences at the commencement of the war.

The statistics of losses in the various fights and during the whole siege are particularly valuable. He shows how the steadily dwindling effective strength of the garrison made the manning of the defences a most difficult matter, in fact after having taken every available non-combatant to reinforce the fighting line the hospitals had to be called on to discharge any man able to stand up and fire a rifle.

The effect of the explosions in the forts is shown to have been extremely severe: thus after an explosion in No. 2 Fort Chi Kuan only 17 men were left alive, while the whole garrison of 140 men was destroyed by an explosion in No. 3 Fort. At the time of the capitulation Port Arthur was merely a vast hospital; in 39 buildings more or less damaged by bombardment were collected 13,776 sick and wounded; nearly all the men counted as still able to fight were actually incapacitated by scurvy and should have been in hospital had there been sufficient accommodation for them. When the garrison surrendered every man who could crawl endeavoured to reach the collecting point for prisoners; 40 men died in the attempt to do so, while 1,468 soldiers were so exhausted that the Japanese medical authorities would not take the risk of attempting their transfer to Japan.

The organization of the medical services seems to have been needlessly complicated and in consequence to have suffered in efficiency. There were seven reserve field hospitals in Port Arthur which were gradually established, but the supply of medicines and surgical material was exhausted before the end of the siege.

At the battle of Nan Shan the regimental dressing station was at first established in an exposed position behind the central redoubt; in a short time about 40 stretcher bearers carrying wounded were killed or wounded.

The strength of the garrison may be taken as 42,000 men. From May 14th to December 17th the following casualties took place: killed, 149 officers, 5,394 men; wounded, admitted to hospital, 448 officers, 20,249 men; wounded, but remained on duty, 67 officers and 3,896 men; missing, 16 officers, 1,087 men. Casualties amounted to 75 per cent. of officers and 72 per cent. of other ranks.

All kinds of expedients were tried to prevent the occurrence of scurvy, but all of them failed owing to the conditions obtaining during the siege. The extensive prevalence of scurvy among the garrison considerably weakened the defence and materially hastened the capitulation.

---

## ORGANIZATION AND ADMINISTRATION.

THE MOTOR CAR AND THE ARMY. (L'Automobile et l'Armée). By Captain Vannier, 111th Infantry Regiment. 414 pp. with 60 illustrations and three maps. Paris, 1911. Chapelot. 8/-.

This is a comprehensive and useful treatise on the military use of motor cars. After giving an account of the history and present position of the question in various foreign countries, of which Germany, England, Austria and Italy have made the greatest progress, the author describes in great detail the machine which the French War Office has purchased and the various trials and competitions for which Government prizes have been offered. He then discusses from the point of view of the French Army the future employment of motor lorries and considers that their use will permit of the suppression of the divisional cattle-park, three-quarters of the supply columns and parks, and one-half of the ammunition columns and parks. But since his calculations require for the French Army the use of 75 "Renard" trains, 4,000 motor lorries, 3,300 light motors and 600 motor-bicycles, it is evident that some years must still elapse before his plan can be brought into practice.

Chapter VI contains a carefully worked out scheme for the supply of food, ammunition, stores, etc., to an Army Corps by motor transport, and since the general idea is the same as that in "Un Voyage d'Etat Major de Corps d' Armée," published in 1908 by Chapelot, we have an interesting comparison between motor and horse transport.

The book will be useful to any officer desirous of studying the problem of motor transport and the administrative services of the French Army.

## POLITICAL.

IMPORTANT POLITICAL TREATIES. (Les Grands Traités Politiques). By Pierre Albin. 554 pp. Paris, Felix Alcan. 8/-.

Giving as it does the text of the principal treaties between the Great Powers, this book is certain to be of interest to students of modern history. Although the treaty of 1740 between France and Turkey is included, the book practically commences with the Treaty of Vienna, 1815, while the latest treaty described is that of August, 1910, by which Japan annexed Korea. The volume is divided into six parts, of which the first deals with Western and Northern Europe, the second with Eastern Europe, the third with Africa, the fourth with Asia, the fifth with America and Oceania, and the sixth with International Arbitration.

## STRATEGICAL AND TACTICAL.

NIGHT OPERATIONS (Nachtübungen). By Major Immanuel. 100 pp. 12mo. Berlin, 1911. Mittler. -/9.

This small book is based on the German Drill Regulations and on the lessons learnt during the 1910 Imperial manoeuvres. It deals with the training of recruits, of subordinate leaders, of the company and of larger formations in night operations.

*(To be continued.)*

(*Copyright*)

**JUST PUBLISHED.** **1s. NET.**

# 'The Command of the Sea; What Is It?'

"A book every true Briton should read."

By Major A. B. N. CHURCHILL, late R.A.

"Sets out in a masterly, lucid, and logical way what sea power really means to the nation."—*The People.*
"It is to be hoped that so brilliant an exposition of sound naval policy, founded upon the teachings of history, may not fail to find many readers among the intelligent section of the public."—*United Service Magazine*
"All Students of British Naval affairs should read this little work."—*The Referee*
"Major Churchill is well known as an author and lecturer on naval and military matters, such as the "Shortage of Officers," &c.—*Publishers' Circular and Booksellers Record.*

**Royal 8vo. Paper Covers. Also a limited edition, Cloth bound, Gold lettered, Price 2s. net.**

**NOW READY.** **LIMITED EDITION.**

# 'Naval Wars in the Baltic'

During the Sailing Ship Epoch, 1522-1850.

**By R. C. ANDERSON,**

Sub-Lieut. R.N.V.R., M.A. (Cantab.), F.R.G.S.

With Seventeen full-page Diagrams illustrating the text, and specially drawn by the Author. Full Bibliography. Separate Indices to all Naval Actions and Operations, the Names of Officers, and of Ships

**Vice-Admiral H.S.H. PRINCE LOUIS OF BATTENBERG, G.C.B., G.C.V.O., K.C.M.G.** (*Personal Aide-de-Camp to the King, Commander-in-Chief of the Atlantic Fleet*), says:—

**"I have no hesitation in testifying to its very great use as a careful, accurate and systematic record of Naval events in the Baltic. . . . It is, moreover, full of interesting matter in questions of detail, much of it being, I am sure, quite new even to regular students. . . . I feel truly grateful to you for its production (which must have been a great labour), as it has been of the greatest use to me in connection with a number of pieces in my collection of Naval Commemorative Medals."**

'We would wish that the British Academy, like the French, bestowed some recognition on deserving books, for such a study as this certainly merits some public honour.'
*Daily Mail.*

'Of considerable importance to all interested in naval history. . . . Deals very fully with the History of the Navies of all the Baltic Powers.'
*Standard.*

'The author has accomplished a task for which all future historians will be indebted to him.'
*Army and Navy Gazette.*

'A useful and handy work of reference.'
*National Defence*

'It is not less evident that his work has been a labour of love.'
*Navy.*

'Impresses the reader with its evidences of careful research. A useful book of reference.
*Manchester Guardian.*

*In One Volume. Demy 8vo. cloth bound, gilt top, containing about 430 pages. Price* **15s.** *net*

**JUST PUBLISHED.** **3s. 6d. NET.**

# Canoeing & Camping Adventures.

**Being an account of Three Cruises in Northern Waters,**

**By R. C. ANDERSON, F.R.G.S.**

With Pen and Ink Sketches by G. C. BOULDERSON.

And with Plans and Diagrams illustrating the text, and specially drawn by the Author.

"Useful to anyone who may intend to visit those waters, . . . gives various expenses, steamer charges, carting, &c."—*Field.*
"The book is unpretentious, . . . but anyone interested in real canoeing, as distinct from the silk-cushioned, parasol, and white ducks, up-river variety, should read it."—*Morning Post*
"The book will commend itself to canoeists and yachtsmen by means of its obvious sincerity."—*The Scotsman.*
"A valuable contribution to the literature of sailing. An eminently readable book."—*Travel and Exploration.*
"Those who are in search of distant 'fields' to conquer next year will read with interest."—*Yachtsman.*
"Pleasantly written, and should be of service to canoeists and small boat sailers."—*Yachting Monthly.*
"In reading these pages, one is forced to the conclusion that the author is a plucky and most expert canoe sailer. . . . Most ambitious voyages."—*Yachting World.*
"After reading Mr. Anderson's narrative, one feels ready to jump up, purchase a canoe, and start right away for Norway and Sweden."—*Bristol Times.*

*In One Volume. Small 8vo, cloth bound, containing about 200 pages.*

**London: C. GILBERT-WOOD,** NORFOLK HOUSE, VICTORIA EMBANKMENT, W.C.

**Furniture Manufacturers, and Upholsterers.**

We would call your attention to our Upholstery Departmen in which we are specialists. We shall be happy to furnish any design required.

In the Cabinet Department we are prepared to quote you for any special work which requiries to be accurately and skilfully done, such as Fireplaces, Fitments; Dado Panelling, Bedroom Suites in any particular styles, with correct details; Cabinets, Sideboards, &c.

# H. J. MACFARLANE, Ltd.,

Contractors to H. M. Government.

Enquiries by Post receive prompt and personal attention.

36 & 37, ALFRED PLACE,
Tottenham Court Road, LONDON, W.C.

Telephone :—Central 14725.

Regd. Trade Mark **'TUBOLITE'** (Tube o' Light).

SCIENTIFIC ELECTRIC LIGHTING WITH METAL OR CARBON FILAMENT LAMPS.

Send for Descriptive Leaflet and Price List.

An Economical and Efficient System.

**THE LINOLITE COMPANY**

'Phone: 244 Victoria. 25d, VICTORIA STREET,
Tel. Add. "Windolite, London." WESTMINSTER.

*Before you shift to evening dress, there is nothing quite so refreshing after a hard day's exercise as a*

# MUSTARD BATH

*A hot bath to which is added a couple of tablespoonfuls or so of*
COLMAN'S MUSTARD

S.H.B.

# JOURNAL

OF THE

# Royal United Service Institution,

WHITEHALL, S.W.

PUBLISHED UNDER THE AUTHORITY OF THE COUNCIL.

*Authors alone are responsible for the contents of their respective Papers.*

---

VOL. LV.

JANUARY TO JUNE, 1911.

---

LONDON:
J. J. KELIHER & CO., LIMITED, 33, KING WILLIAM STREET, E.C.
AND CRAVEN HOUSE, KINGSWAY, W.C.

1911.

[*Entered at Stationers' Hall. All rights reserved.*]

# INDEX.

## JANUARY TO JUNE, 1911.


PAGE

AERIAL Warfare, The Use of Explosives in, with some Remarks on Methods of Defence. Walter F. Reid, F.I.C., F.C.S., President of the Society of Chemical Industry. (*Lecture*) ... ... ... ... ... 735

AEROPLANES of To-day and Their Use in War. Captain C. T. Burke, R. Irish Regt. (Army Air Battalion) ... ... ... ... ... ... 622

AFGHAN War, The First, 1838—1842. Captain Bruce Hay, *p.s.c.*, Queen's Own Corps of Guides .. .. ... ... .. ... ... ... 195

ASTRONOMY for the Army. Lieutenant E. W. Cox, R.E., 1st Field Troop, Aldershot ... ... ... ... ... ... ... ... ... ... 314

BALLAD Poetry of the Sea. Lieutenant Julian Tenison, R.N. ... ... 750

BOARD of Admiralty, Organization of the British, Translated from the *Marine Rundschau* by Colonel H. Wylly, C.B. ... ... ... ... 757

BOATSWAIN'S Call. As it was and should still be used in H.M. Navy. Lieutenant, R.N. ... ... ... ... ... ... ... ... 77

BOY Scouts in Connection with National Training and National Service. Lieut.-General Sir Robert Baden-Powell, K.C.B., K.C.V.O. (*Lecture*) 581

CANADA, Progress and Failure of Expedition from, June to October, 1777. Rev. H. Belcher, M.A., LL.D. (*Lecture*) ... ... ... ... 3

CASTLES, The Strategical Aspects of English. W. H. St. John Hope, Esq., M.A., Director of the Royal Archæological Institute. (*Lecture*) ... 286

CAVALRY, The Fighting Value of Modern. C. Von Hutier. Contributed by the General Staff .. ... ... ... ... ... ... ... 352

CHARLES I., Colonel Harwood's Advice to King, on the Defence of the Country ... ... ... ... ... ... ... .. ... ... 279

CRIMEA Revisited, The. Major-General H. T. Arbuthnot, C.B. (*Lecture*) 689

DECAEN and Linois. John Leyland ... ... ... ... ... ... 360

DECLARATION of London and our Food Supplies. Douglas Owen, Esq. (*Lecture*) ... ... ... ... ... ... ... ... ... 149

EAST Indiamen, The Last of The. W. B. Whall ... ... ... ... 83

ESSAY, Gold Medal Prize, 1910. How Can the Colonies Best Help in the Defence of the Empire? Captain P. W. Game, *p.s.c.*, R.H.A.... ... 423

ESSAY, Second Prize, 1910. Lieutenant L. H. Hordern, R.N. (Retired) 545

FIFTEENTH Century Trader, A. R. Morton Nance ... ... ... ... 357

GREIG, Samuel, Grand Admiral Imperial Russian Navy. Major-General N. Beklemisheff, Imperial Russian Army... ... ... ... ... 143

IMPERFECTLY Trained Troops, Lessons to be drawn from Leading of in American Civil War, 1863. Major E. F. Hall, R.F.A. ... ... 39

LÖBELL Reports on Military Matters in 1909, Von. *Précis* from the German by Lieut.-Colonel E. Gunter, *p.s.c.*, late East Lancashire Regiment ... ... ... ... ... ... ... ... ... 62, 186

MARINE Artists, Eminent. Harry Parker ... ... ... ... ... 73

MEDIÆVAL Ships in Painted Glass and on Seals. H. H. Brindley... 224, 363

PAGE

MEXICAN Army, The. Translated from the *Revue Militaire des Armées Etrangères* ... ... ... ... ... ... ... ... ... 775

MILITARY Education. Notes by the Editor ... ... ... ...481, 633, 782

MILITARY Relics and Trophies in the Museums of Italy. Lieut.-General F. H. Tyrrell, Colonel 74th Punjabis ... ... ... ... ... 339

NIGER-CHAD Boundary Commission, With the Anglo-French. Major C. B. Simonds, R.G.A. (*Lecture*) ... ... ... ... ... ... ... 455

NORTH Sea, The. Translated from *Marine Rundschau*. Communicated by the Naval Intelligence Department... ... ... ... ... ... 638

RASPLATA ("The Reckoning"). Commander Vladimir Semenoff, Imperial Russian Navy. Translated by L. A. B. ... ... ... ... ... 52

SEA Power in the Pacific. Archibald R. Colquhoun, Gold Medallist, R.G.A. (*Lecture*) ... ... ... ... ... ... ... ... 600

SOLDIER Maid, The Matchless, Blessed Joan of Arc. Father Bernard Vaughan, S.J. (*Lecture*) ... ... ... ... ... ... ... 304

TORPEDO Boats, Tactical Employment of. L. Vannutelli, Capitano di Corvetta. Translated from the *Rivista Marittima* by Commander R. H. Keate, R.N. ... ... ... ... ... ... ... ... ... 709

WIRE-CUTTER, The Oliver. (A Description by Sir J. Macdonald) ... ... 618

UNION Flag, The. W. G. Perrin ... ... ... ... ... ... ... 219

UNION Flag, The. Rear-Admiral Sir R. Massie Blomfield, K.C.M.G. ... 770

---

FRONTISPIECES:—

TROOP Standards of the Life Guards, 1684 ... ... ... ...Opposite 1

GRAND Admiral Samuel Greig (1736-1788), Imperial Russian Navy „ 139

GERMAN First-Class Armoured Cruiser *Von der Tann*... ... ... „ 275

THE Island of Helgoland ... ... ... ... ... ... ... „ 419

MOUNT Ruwenzori ... ... ... ... ... ... ... ... „ 541

PHOTOGRAPHS of Fez ... ... ... ... ... ... ... ... „ 685

---

SECRETARY'S Notes ... ... ... ... ... 1, 139, 275, 419, 541, 685

NAVAL Notes ... ... ... ... ... 86, 229, 367, 500, 660, 785

MILITARY Notes ... ... ... ... ... 96, 240, 377, 510, 667, 797

NAVAL and Military Calendar ... ... ... 111, 257, 396, 527, 675, 813

CONTENTS of FOREIGN PERIODICALS ... ... 111, 258, 397, 528, 676, 818

NOTICES of Books ... ... ... ... ... 117, 263, 403, 535, 680, 813

PRINCIPAL Additions to Library ... ... ... 119, 266, 404, 421, 543, 687

RECENT Publications of Military Interest; compiled and communicated by the General Staff, War Office, October, 1910 ... 121

„ „ January, 1911 ... ... ... ... ... 268, 407

„ „ April, 1911 ... ... ... ... ...536, 681, 823

---

CORRESPONDENCE:—

THE Theory of the Tides; by J. F. Ruthven ... ... ... ... ... 256

## LIST OF AUTHORS AND TRANSLATORS.


PAGE

ARBUTHNOT, Major-General H. T., C.B. (The Crimea Revisited.) ... ... 689

BADEN-POWELL, Lieut.-General Sir Robert, K.C.B., K.C.V.O. (Boy Scouts.) 581

BEKLEMISHEFF, Major-General N., Imperial Russian Army. (Samuel Greig, Grand Admiral Imperial Russian Navy.)... ... ... ... 143

BELCHER, Rev. H., M.A., LL.D. (Progress and Failure of Expedition from Canada, June to October, 1777.) ... ... ... ... ... 3

BLOMFIELD, Rear-Admiral Sir R. Massie, K.C.M.G. (The Union Flag.) ... 770

BRINDLEY, H. H. (Mediæval Ships in Painted Glass and on Seals.) 224, 363

BURKE, Captain C. T., Royal Irish Regt. (Aeroplanes of To-Day and Their Use in War) ... ... ... ... ... ... ... ... ... ... 622

COLQUHOUN, Archibald R. (Sea Power in the Pacific.) ... ... ... 600

COX, Lieutenant E. W., R.E. (Astronomy for the Army.) ... ... ... 314

EDITOR, The. (Notes on Military Education.) ... ... ... 481, 633, 782

GAME, Captain P. W., *p.s.c.*, R.H.A. (Gold Medal Prize Essay, 1910. How Can the Colonies Best Help in the Defence of the Empire?)... ... 423

GUNTER, Lieut.-Colonel E., *p.s.c.* (Von Löbell Reports.) ... ... 62, 186

HALL, Major E. F., R.F.A. (Lessons from Hastily and Imperfectly Trained Troops, American Civil War to 5th May, 1863.)... ... ... ... 39

HAY, Captain Bruce, *p.s.c.*, Queen's Own Corps of Guides. (The First Afghan War, 1838-1842) ... ... ... ... ... ... ... ... 195

HORDERN, Lieutenant L. H., R.N. (Retired). (Second Prize Essay, 1910. How Can the Colonies Best Help in the Defence of the Empire?)... 545

HUTIER, C. Von. (Fighting Value of Modern Cavalry.) ... ... ... 352

KEATE, Commander R. H., R.N. (The Tactical Employment of Torpedo Boats.) ... ... ... ... ... ... ... ... ... ... 709

LEYLAND, John. Decaen and Linois ... ... ... ... ... ... 360

LIEUTENANT, R.N. (Boatswain's Call.) ... ... ... ... ... ... 77

MACDONALD, Sir J. (The Oliver Wire Cutter.) ... ... ... ... ... 618

NANCE, R. Morton. (A Fifteenth Century Trader.) ... ... ... ... 357

OWEN, Douglas, Esq. (Declaration of London and our Food Supplies.) ... 149

PARKER, Harry. (Eminent Marine Artists.) ... ... ... ... ... 73

PERRIN, W. G. (The Union Flag.)... ... ... ... ... ... ... 219

REID, Walter F., F.I.C., F.C.S. (Use of Explosives in Aerial Warfare. ... 735

RUTHVEN, J. F. (The Theory of the Tides). (*Letter*). ... ... ... 256

SEMENOFF, Commander Vladimir, Imperial Russian Navy. (Rasplata.) ... 52

SIMONDS, Major C.B., R.G.A. (With the Anglo-French Niger-Chad Boundary Commission.) ... ... ... ... ... ... ... ... ... ... 455

ST. JOHN HOPE, W. H., Esq., M.A. (Strategical Aspects of English Castles.) 286

TENISON, Lieutenant Julian, R.N. (Ballad Poetry of the Sea.) ... ... 750

TYRRELL, Lieut.-General F. H., Colonel 74th Punjabis. (Military Relics and Trophies in the Museums of Italy.) ... ... ... ... ... 339

VANNUTELLI, L., Capitano di Corvetta (The Tactical Employment of Torpedo Boats.) ... ... ... ... ... ... ... ... ... 709

VAUGHAN, Father Bernard, S.J. (The Matchless Soldier Maid, Blessed Joan of Arc) ... ... ... ... ... ... ... ... ... ... 304

WHALL, W. B. (Last of the East Indiamen.) ... ... ... ... ... 83

WYLLY, Colonel H., C.B. (Organization of the British Board of Admiralty.) 757

# OETZMANN & Co LTD
HAMPSTEAD ROAD
LONDON. W.

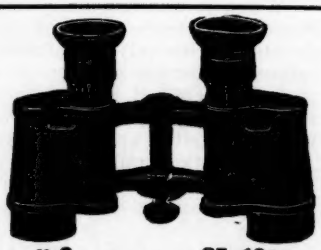
MANUFACTURER'S STOCK
OF
BEDROOM FURNITURE
AT
**40** PER CENT UNDER
REGULAR PRICES.
ABOUT
£1,000 WORTH ONLY.
AN EARLY VISIT ESSENTIAL
TO SECURE THE
BARGAINS OFFERED.

# ZEISS

**ARTILLERY**
**SERVICE GLASS.**

Greatest Possible Illumination.
Field of View 8·4°. Splendid Definition up to the Margin. Durability in the Tropics.

NEW BOOKLET "T. 10." POST FREE.



**x 6 - - £7 10s.**
If fitted with Standard Graticule, 15/9 extra.

**CARL ZEISS (London) Ld.** 13/14, GREAT CASTLE ST., Oxford Circus, LONDON, W.

MAKE { MESS ROOMS / BARRACK ROOMS } COMFORTABLE

GEO. REES & Co., { MILITARY, NAVAL, / HUNTING & OTHER } PICTURES

**Savoy House, 115, Strand** (Corner of Savoy St.) **London.**

A Large and Important Collection at Lowest Prices always on view.

# National Defence

THE OFFICIAL ORGAN OF THE COUNCIL OF

**COUNTY TERRITORIAL ASSOCIATIONS, AND THE NATIONAL DEFENCE ASSOCIATION**

WHOSE OBJECT IS TO SHOW THE NECESSITY FOR LAND AS WELL AS NAVAL FORCES ADEQUATE TO THE NEEDS OF THE EMPIRE, AND TO ASSIST IN REMOVING ARMY QUESTIONS FROM THE ARENA OF PARTY POLITICS.

**PUBLISHED QUARTERLY.** **Price 2/6 nett.**

The Editor invites contributions from all who are interested in any aspect of the problem of National Defence, and particularly from Officers holding His Majesty's Commission at home and in the Colonies.

**The issue of this Magazine published on Feb. 15, 1910, was the first number of a new Quarterly Series.**

When it was originally determined to extend the work of the National Defence Association by the publication of a magazine devoted exclusively to Defence questions, it was thought wise to issue it monthly for the first year or so in order to attract the attention of persons interested, both at home and in the British Dominions overseas, more rapidly than would have been possible in the initial stages with a periodical appearing only once in every three months.

This work of publicity has now been adequately performed.

"National Defence" has in a little over a year attained a recognised position as a first-class periodical dealing with Naval and Military subjects; it is regularly and most favourably noticed by all newspapers of standing both at home and abroad, and it has a wide and increasing circulation; therefore, they have now agreed to place the Magazine on a permanent basis, and with this end in view they have decided upon quarterly publication in 1910 and thereafter.

**Price to Annual Subscribers 10/- yearly, or with postage to any part of the World, 11/4.**

Published for the NATIONAL DEFENCE ASSOCIATION.

**The current issue of "National Defence"—June—is the special Coronation Number. . . . . .**

**IMPORTANT TO ADVERTISERS.**

This invaluable Publication is subscribed for by all the leading Clubs, Home, Indian, Colonial, and Territorial Messes.

"NATIONAL DEFENCE" is officially in the hands of ALL Secretaries and Authorities of the County Associations, who are the sole authorised buyers of Uniforms, Equipment and general supplies for the Territorial Army of Great Britain.

**All** Applications for Advertisement Space in this Magazine should be made to—

C. GILBERT-WOOD, NORFOLK HOUSE, VICTORIA EMBANKMENT, LONDON, W.C.

Telephones—4680 GERRARD. Telegrams—"GILBERWOOD, LONDON."

## BATTLE HONOURS of the BRITISH ARMY

From Tangier, 1662 to the close of the Reign of King Edward VII.

**By C. B. NORMAN,**

Late 90th Light Infantry and Indian Staff Corps
(sometime Special Military Correspondent of *The Times*.)

*With Maps and Illustrations. Demy 8vo.* 15/- *net: Just out.*

This work describes succinctly all the battles which have been deemed worthy of emblazonment on the colours of the British Army. To each description is appended the present designation of the Regiments entitled to bear the honour, with a carefully tabulated statement showing the losses of every individual Corps. No similar work exists, indeed many of the "casualty returns" are now published for the first time. The book should be invaluable to all soldiers whether Regular or Territorial, and will not be without interest to the general reader whose thoughts at times turn to the brave men who have died for their country.

## LETTERS ON AMPHIBIOUS WARS

**By Brigadier-General GEORGE G. ASTON, C.B.**

General Staff; and Brevet-Colonel Royal Marine Artillery.

*With Maps. Demy 8vo.* 10*s.* 6*d. net. Just out.*

". . . . . A most valuable text-book for earnest Students of the art of War."—*War Office Times.*

"Such a book as this fills a gap in Naval and Military history, and is, with singular suitability, written by a brilliant officer of the Royal Marines. . . Those who read General Aston's book will be much better fitted to judge the importance of war problems, and he has so easy a command of his subject that he makes it clear and interesting."—*The Daily Chronicle.*

**JOHN MURRAY, ALBEMARLE STREET, W.**



THE

# CAVALRY JOURNAL

Published by Authority of the Army Council, and under the direction of General Sir J. D. P. FRENCH, G.C.V.O., K.C.B., K.C.M.G., Colonel 19th Hussars, Inspector General of the Forces, assisted by Lieut-General Sir R. S. S. BADEN-POWELL, K.C.B., K.C.V.O.

**Published Quarterly, Price 2/6 net. Postage 4d.**

**NOW READY. No. 22.—APRIL, 1911. NOW READY.**

**CONTENTS.**

THE EAST INDIA COMPANY'S EUROPEAN LIGHT CAVALRY, 1858.
THE STRATEGICAL AND TACTICAL RECONNAISSANCE BY CAVALRY. By Major J. W. FERGUSON, 20th Hussars.
SOME THOUGHTS ON DISMOUNTED ACTION. By "STRIGUIL."
MOTOR CYCLES WITH CAVALRY. By "LANCER"
"REGI ADSUMUS COLONI." By Colonel H. FORTESCUE. (Illustrated).
THE GENDARMERIE OF BELGIUM AND THEIR NEW EQUIPMENT. By A. E. PEARSE. (Illustrated).
THE TRAINING & EMPLOYMENT OF CAVALRY. By Colonel H. P. GOUGH.
CAVALRY AGAINST INFANTRY. By VON DER BOCK.
INDEPENDENT CAVALRY: ITS ROLE IN WAR. By Captain CECIL BATTINE (Late 15th Hussars).
HODSON OF HODSON'S HORSE. By Colonel R. H. MACKENZIE. (Illustrated).
THE WORK OF THE CAVALRY AT SOBRAON. By Colonel H. C. WYLLY, C.B.
CAVALRY MACHINE GUNS ON PACK ANIMALS OR CARRIAGES. By Captain H. VICTORIN (3rd Austrian Dragoons).
THE CAVALRY SWORD. By Major R. M. POORE, D.S.O. (7th (Q.O.) Hussars). (With Diagrams).
AEROPLANES WITH CAVALRY. By Lieut. R. A. CAMMELL, R.E.
THE MAMELUKES, OR SLAVE CAVALRY OF EGYPT. By C. R. B. BARRETT. (Illustrated).
HAND TO HAND FIGHTS OF CAVALRY MASSES SINCE WATERLOO. By "Cavalier."
INDIAN SILAHDAR CAVALRY. By Captain H. J. K. WALLIS (20th Deccan Horse).
EUROPEAN LIGHT CAVALRY OF THE HONOURABLE EAST INDIA COMPANY'S SERVICE.
CAVALRY SABRETACHES. By D. HASTINGS IRWIN. (Illustrated).
RECENT PUBLICATIONS
NOTES. (Illustrated).
SUMMER TRAINING OF A CAVALRY MAXIM BRIGADE. By Lieut. M. CRAWSHAY (5th Dragoon Guards).
OPPOSITE VIEWS. By ERSKINE CHILDERS.
MECHANICAL HEADS AND POSTS.
SPORTING NOTES.

**SUBSCRIPTIONS should be sent direct to:—The Managing Editor at THE ROYAL UNITED SERVICE INSTITUTION, WHITEHALL, LONDON, S.W.**

or Copies may be obtained by ALL Booksellers, Newsagents and Railway Booksellers, from

**C. GILBERT-WOOD, NORFOLK HOUSE, VICTORIA EMBANKMENT, LONDON, W.C.**

Telephone Nos. 4680 & 4680A GERRARD. Telegraphic Address:—"GILBERWOOD, LONDON.

LIVERPOOL.

# THE COMPTON HOTEL,

CHURCH STREET.

**MODERATE FIXED TARIFF.**

THIS First-class Hotel for Families and Gentlemen occupies the finest site in the principal street of the city. Adjacent to all the best Shops, Theatres, Music Halls, Shipping Offices, Exchanges, and the River Landing Stage.

**BEDROOMS FROM 4/-**

TELEGRAMS: "COMPTON." TELEPHONES: 3032, 3033, 3034, ROYAL.

**FISHING. SHOOTING. GOLF.**

# McDEVITT'S HOTEL,

**MILFORD, CO. DONEGAL.**

Excellent Salmon and Trout Fishing in the river Lennon, and nine lakes encircling hotel, free to visitors. 16,000 acres of strictly preserved shooting. First-class hotel situated in the midst of the most beautiful scenery, and best sporting :: :: :: district in Donegal. Golf Links adjoining. :: :: ::

FOR INCLUSIVE TERMS APPLY PROPRIETOR.

# WEEDS

**DISFIGURE YOUR LAWNS AND WALKS**

**"CLIMAX" LAWN SAND**

Kills weeds on lawns, fertilizes the finer grasses; it has transformed thousands of weedy lawns. Large sample and full particulars, **1/-** post free. 28 lbs., to dress 100 sq. yds., **6/-**, 56 lbs., **11/-**, 1 cwt., **20/-**, carriage paid.

**"CLIMAX" WEED KILLER**

Kills all weeds on walks and keeps them bright and clean. No. 1 tin, **1/-**, No. 2, **2/-**, No. 3, **3/6**, No. 4, **6/-**, carriage paid.

**"Reliable Garden Helps," 1d.** *post free.*

**BOUNDARY CHEMICAL CO., Ltd., Cranmer St., Liverpool.**

**'OMNE TEMPUS' RUBBERLESS RAINPROOFS.**

*(Military, Civilian, or Ladies', Boys' or Girls.')*

**BEAR AN UNQUALIFIED GUARANTEE.**

"If your Omne Tempus fails to keep out the rain, we will take it back." **45/-**

*Ready for wear, in all sizes and styles, or made to order. Healthy, cool and comfortable, and moreover of the texture of an ordinary close-woven woollen tweed, not a cold, clammy linen-like fabric.*

*Established 80 Years.*

**SAMUEL BROTHERS, Ltd.,**

**65 & 67, Ludgate Hill, LONDON, E.C.**

**All APPLICATIONS for ADVERTISEMENT Space in THIS JOURNAL**

SHOULD BE MADE TO

C. GILBERT-WOOD,

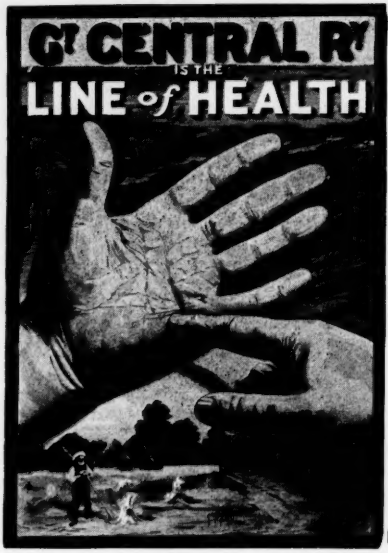
NORFOLK HOUSE,

VICTORIA EMBANKMENT,

LONDON, W.C.

TELEPHONES 4680 Gerrard.

TELEGRAMS—"Gilberwood, London."




Unrivalled Selection of

**COAST & COUNTRY HEALTH RESORTS.**

***Express Excursions***

To the MIDLANDS, YORKSHIRE, LANCASHIRE,

***N.E.*** AND ***N.W.*** Coasts. — Scarboro', Cleethorpes Bridlington, Filey. . . Southport, Blackpool, Lytham, Isle of Man. .

Chiltern Hills & Shakespeare's Country. — DAY & HALF-DAY TRIPS

From LONDON

**MARYLEBONE.**

**A.B.C. Programme** of Tourist and Excursion Facilities for week-ends and longer periods can be obtained FREE at Marylebone Station, G.C.R. Town Offices, Dean & Dawson, 82, Strand, and London Branch Offices, or by post from Publicity Dept., 216, Marylebone Road, N.W.

SAM FAY, General Manager.

# Dr. Barnardo's Homes

Train Boys and Girls

## For the Empire.

*Patrons:*
HIS MAJESTY THE KING.
HER MAJESTY THE QUEEN.
HER MAJESTY QUEEN ALEXANDRA.

*President:*
THE DUKE OF SOMERSET.

**74,000 Children Rescued.**
**9,400 now in residence.**
**900 under Technical Training.**
**22,945 Emigrated.**
**98 % are successful.**

**300 in training for the Navy and Mercantile Marine.**

**HELP URGENTLY NEEDED for Coronation Fund.**

*Cheques payable "Dr. Barnardo's Homes."*
*Hon. Director: Wm. Baker, Esq., LL.B.*
*Hon. Treasurer: Howard Williams, Esq.,*
*General Secretary: Claude Wright.*
*Head Offices:* 18 to 26, *Stepney Causeway, London, E.*


THE ADVERTISEMENT DEPARTMENT OF THIS JOURNAL IS CONDUCTED IN GILBERT-WOOD'S ADVERTISING OFFICES, NORFOLK HOUSE, VICTORIA EMBANKMENT, LONDON, W.C., WHERE ALL COMMUNICATIONS SHOULD BE ADDRESSED.
TELEPHONE NO. 4680 GERRARD.

# Mr. E. Carlisle, M.A. (Cantab.),

AND

# Major M. H. Gregson, late R.E.

Prepare Candidates for all Army and Civil Service Examinations, at

**5 & 7, LEXHAM GARDENS, KENSINGTON, W.**

---

**We have retained the services of all the Tutors who have been so remarkably successful in past years, and continue to receive both Resident and Non-Resident Candidates.**

---

## Recent Successes include:

### STAFF COLLEGE 1910.

The following were successful from us:—

Capt. C. W. Herringham, 6th Dragoons.
" H. G. Pringle, Royal Field Artillery.
" J. G. Dooner, Royal Field Artillery.
" W. G. H. Salmond, Royal Field Artillery.
Lieut. E. Clayton, Royal Field Artillery.
Capt. R. R. Hill, Royal Garrison Artillery.
" H. F. L. Grant, Royal Garrison Artillery.
" R. G. Troup, Royal Marine Artillery.
" L. C. Jackson, C.M.G., Royal Engineers
" R. O'H. Livesay, D.S.O., Royal West Surrey Regiment.
" J. H. D. Costeker, D.S.O., Royal Warwickshire Regiment.
" C. E. Luard, D.S.O., Norfolk Regiment.
" G. H. Walford, Suffolk Regiment.
" E. F. Grant-Dalton, West Yorkshire Regiment.
" P. A. V. Stewart, King's Own Scottish Borderers.
" C. E. Lea, Worcestershire Regiment.
" M. R. Walsh, Worcestershire Regiment.
" W. A. I. Kay, King's Royal Rifle Corps.
Capt. E. A. Bradford, King's Royal Rifle Corps.
" E. L. Makin, Wiltshire Regiment.
" G. E. Leman, North Staffordshire Regiment.
" C. M. Gibbon, Royal Irish Fusiliers.
Lieut. Hon. M. A. Wingfield, Rifle Brigade.
Capt. S. F. Muspratt, 12th Cavalry (Indian Army).
" V. E. Gwyer, 10th Jats (Indian Army).
" W. S. Leslie, 31st Punjabis (Indian Army).

*Nominations:*

Capt. A. Hinde, Royal Field Artillery.
" F. M. C. Trench, Royal Field Artillery.
" R. H. Kearsley, 5th Dragoon Guards.
" C. F. Watson, D.S.O., Royal West Surrey Regiment.
" W. Northey, D.S.O., Durham Light Infantry.
Capt. and Brevet Maj. Hon. R. A. Campbell, Cameron Highlanders.
" K. Wigram, 2nd Gurkha Rifles (Indian Army).

### STAFF COLLEGE (QUETTA), NOVEMBER, 1909.

NINETEEN OF THE TWENTY-FOUR SUCCESSFUL CANDIDATES READ WITH US.

---

## Other Successes include:

### ARMY QUALIFYING.

TWENTY-ONE PASSED.

### WOOLWICH (JUNE).

TWO PASSED

### INDIAN POLICE (JUNE).

ONE PASSED.

### MILITARY COMPETITIVE.

SEVENTEEN PASSED.

### PROMOTION.

EIGHTY-THREE PASSED.

**WORK NOW GOING ON IN ALL DEPARTMENTS.**



THE ADVERTISEMENT DEPARTMENT OF THIS JOURNAL IS CONDUCTED IN GILBERT-WOOD'S OFFICES, NORFOLK HOUSE, VICTORIA EMBANKMENT, LONDON, W.C., WHERE ALL COMMUNICATIONS SHOULD BE ADDRESSED.
TELEPHONE NO. 4680 GERRARD.